ECR

EFFICIENT CONSUMER RESPONSE

ENHANCING CONSUMER VALUE IN THE GROCERY INDUSTRY

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ENHANCING CONSUMER VALUE
IN THE GROCERY INDUSTRY

Produced for

Uniform Code Council, Inc.
Grocery Manufacturers of America
Food Marketing Institute
National Food Brokers Association
American Meat Institute

by

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Management Consultants

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The sponsors for this research study were:

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References:

New Ways to Take Costs Out of the Retail Food Pipeline, Making Replenishment Logistics Happen; by Mercer Management Consulting, conducted for the Coca-Cola Retailing Research Council. This report focuses on the immediate significance of the new replenishment logistics practices. It takes a practical approach to recent logistics trends by focusing on currently available opportunities for taking costs out of the system. Available from The Coca-Cola Company, P.O. Drawer 1734, Atlanta, GA 30301 or by calling 1-800-GET-COKE. No charge for single copies.

Horizon Scan Report; A review of current and future automatic identification and EDI technology and grocery and general merchandise distribution best practices. General conclusions available now (no charge). Additional information will be published in a series of articles. Contact the Uniform Code Council, 8163 Old Yankee Road, Suite J, Dayton, OH 45458.

Wholesale Food Distribution: Today and Tomorrow; A study of the wholesale grocery industry undertaken by Andersen Consulting on behalf of the National-American Wholesale Grocers' Association (NAWGA) focusing on the background and current role of the grocery wholesaler. Available from NAWGA, 201 Park Washington Court, Falls Church, VA 22046. Full report: $35.00 (members), $100.00 (non-members); Executive Summary: $25.00 for 10 copies.

Trade Practice Recommendations for Grocery and Non-Food Products, 1990; These recommendations, endorsed by related industry trade associations, provide a summary of current industry practice and guidelines with an intent to develop more efficient ways of doing business. The report will be updated in 1993 to reflect changing industry strategies including ECR. 1990 report available from GMA, 1010 Wisconsin Avenue NW, Washington, DC 20007. Price: $7.50.

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FOREWORD

In recent years a growing number of grocery retailers, distributors, suppliers and brokers have become increasingly concerned that the grocery industry is losing its competitive edge. Productivity growth in food retailing over the last twenty years has fallen behind other retail channels. These other channels have also caught up with, and in some cases surpassed, the grocery industry's technological lead in Electronic Data Interchange and bar-coded product identification.

As industry growth has slowed, many industry participants feel relationships between trading partners have become increasingly adversarial as both sides have sought to increase their profit at the expense of the other. The complexity of deals has lead to huge amounts of administrative effort, persistent problems with inconsistent information and excessive inventories throughout the supply chain.

In mid-1992, industry leaders created a joint-industry task force, The Efficient Consumer Response Working Group. The task force was charged with examining the grocery supply chain and its trade practices to identify potential opportunities for changes in practices or in technology that would make the supply chain more competitive. The Working Group was encouraged to consider the experience of other industries, e.g. general merchandise retailing, in its study.

Kurt Salmon Associates was engaged by the ECR Working Group to conduct this supply chain analysis. KSA, which had been instrumental in the development and introduction of Quick Response in the general merchandise industry, was asked to examine the grocery supplier/distributor/consumer value-chain to determine the cost and service improvements the industry could achieve through technological and business practice changes.

This report identifies major opportunities for cost reduction within the supply chain. Fundamental to the realization of these opportunities are major changes in the relationships between trading partners, moving from win/lose adversarial relationships to win/win alliances in which all parties work together to eliminate cost from the supply chain, thereby providing greater value to the grocery consumer. ECR is far more than technological and EDI implementation. Changes will also be necessary in a company's culture, traditions and business practices.

Success will depend upon strong leadership from industry leaders, both within their own companies, and across the industry to create the right climate for these new

relationships and alliances. Despite these challenges, the rewards of success are tremendous – ECR participants will capture a growing share of the market and emerge as the dominant companies in the industry by the mid-1990s.

Joint Working Group Co-Chairmen

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ACKNOWLEDGMENTS

ECR Working Group Members

Borden, Inc.
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The Coca-Cola Company
Crown/BBK Incorporated
Kraft General Foods
The Kroger Co.
Nabisco Foods Group
Oscar Mayer Foods Corp.
The Procter & Gamble Co.
Ralston Purina Company
Safeway Inc.
Sales Force Companies, Inc.
Scrivner, Inc.
Shaw's Supermarkets, Inc.
SUPERVALU INC.
The Vons Companies, Inc.

We would also like to thank Andersen Consulting, Willard Bishop Consulting and Mercer Management Consultants for their cooperation in the preparation of this report. Each firm has been working on separate but related engagements to enhance the efficiency of the grocery supply chain.

Finally, we would like to thank the trade associations who sponsored this project. Their joint support is a model for the more co-operative supplier/distributor relationships that are a key part of the ECR strategy.

EXECUTIVE SUMMARY: 10 KEY QUESTIONS ON E.C.R.

1. WHAT IS EFFICIENT CONSUMER RESPONSE?

ECR is a grocery-industry strategy in which distributors and suppliers are working closely together to bring better value to the grocery consumer. By jointly focusing on the efficiency of the total grocery supply system, rather than the efficiency of individual components, they are reducing total system costs, inventories, and physical assets while improving the consumer's choice of high quality, fresh grocery products.

The ultimate goal of ECR is a responsive, consumer-driven system in which distributors and suppliers work together as business allies to maximize consumer satisfaction and minimize cost. Accurate information and high-quality products flow through a paperless system between manufacturing line and check-out counter with minimum degradation or interruption both within and between trading partners.

The distributors and suppliers committing to ECR believe that they allowed themselves to become complacent about the efficiency of the grocery supply chain and, in so doing, have inadvertently supported business practices that add time and cost to the supply chain without creating consumer value. These companies are working together to relentlessly strip time and cost from the total supply chain. They are questioning every activity in their organizations asking themselves whether it adds to consumer value or, if not, how it can be eliminated or made less costly.

Exhibit 1:
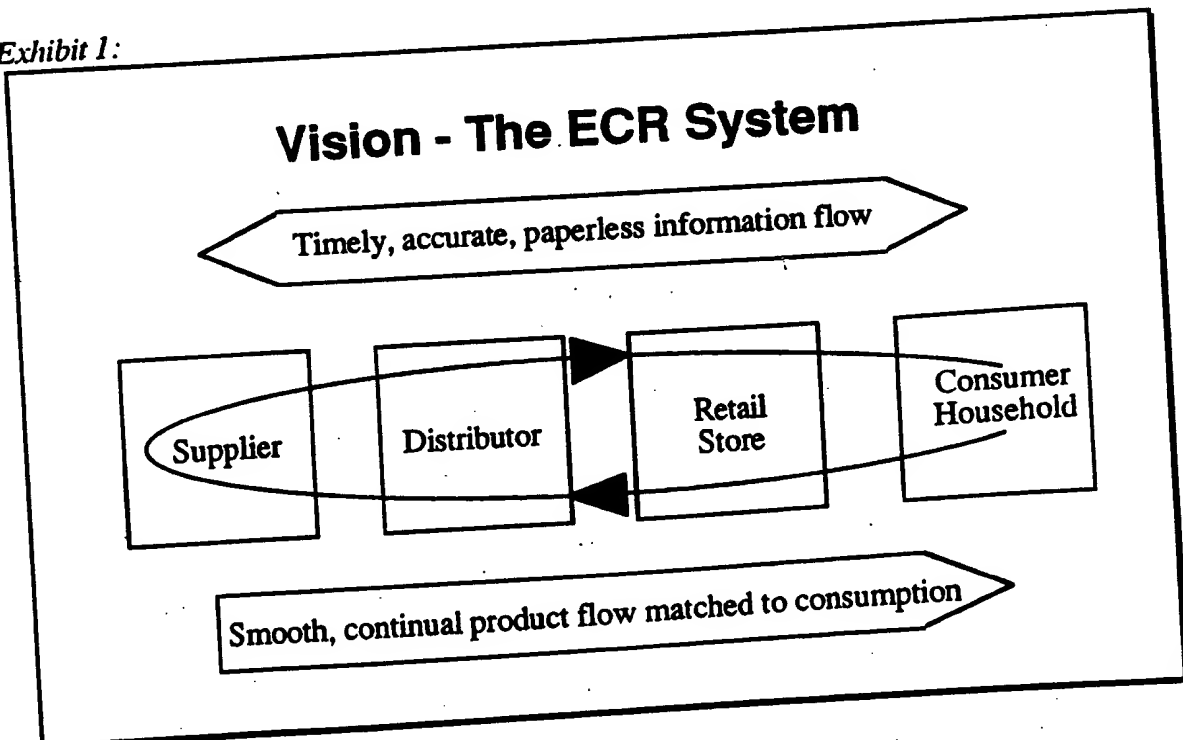
Vision - The ECR System

Timely, accurate, paperless information flow

Supplier — Distributor — Retail Store — Consumer Household

Smooth, continual product flow matched to consumption

The ECR Working Group has developed five guiding principles that concisely articulate the ECR strategy. These are shown in Exhibit 2.

Exhibit 2:

GUIDING PRINCIPLES OF EFFICIENT CONSUMER RESPONSE

1. Constantly focus on providing better value to the grocery consumer: better product, better quality, better assortment, better in-stock service, better convenience with less cost throughout the total chain.

2. ECR must be driven by committed business leaders determined to achieve the choice to profit from the replacement of the old paradigms of win/lose trading relationships with win/win mutually profitable business alliances.

3. Accurate and timely information must be used to support effective marketing, production and logistic decisions. This information will flow externally between partners through EDI using UCS standards and will internally affect the most productive and efficient use of information in a computer-based system.

4. Product must flow with a maximization of value-adding processes from the end of production/packing to the consumer's basket so as to ensure the right product is available at the right time.

5. A common and consistent performance measurement and reward system must be used that focusses on the effectiveness of the total system (i.e. better value through reduced costs, lower inventory and better asset utilization), clearly identifies the potential rewards (i.e. increased revenue and profit), and promotes equitable sharing of those rewards.

2. ISN'T ECR JUST EDI AND BAR-CODING?

No. While UCC bar-coded product identification and Electronic Data Interchange using the UCS industry standards are an essential part of ECR, experience has shown that their benefits are limited without the changes that result from the joint supplier/distributor alliances that are the heart of ECR. Automating inefficient business processes is both complex and ineffective. ECR focuses first on re-engineering business processes to make them efficient, and then automating them, at much lower cost, to further reduce wasted time and cost.

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3. IS ECR THE SAME AS EDLP?

No. Adopting the ECR philosophy does not require a retailer to change its pricing strategy to the consumer. Retailers will realize benefits from ECR whether they believe in a promotional or an Every Day Low Pricing strategy, both of which have been proven to be efficient in appropriate applications and retail formats.

ECR allies will however jointly modify the way in which trade and consumer promotions are implemented. Price incentives which require a wholesaler or retailer to stockpile excess inventory to maintain a competitive average purchase cost will be reduced and replaced with alternatives such as continuous deal pricing and separate merchandising fund payments.

4. WHAT ARE THE BENEFITS OF ECR?

$30 billion saved • 41% less inventory

The benefits of ECR are substantial, with total savings in the warehouse-supplied dry-grocery segment of $10 billion. The savings in this segment, which represents approximately one-quarter of total sales volume, will also be found in other segments (e.g. frozen, HBC, general merchandise, dairy) and, to a lesser extent, in perishables. It is projected that the total potential supply chain savings are in excess of $30 billion. Because the grocery supply chain is a highly competitive system it is likely that ultimately all of the cost savings and the financial savings will be passed through to the consumer. This is exactly what has happened with Quick Response in the general merchandise segment.

The consumer will therefore be a primary beneficiary of ECR. This will significantly close the price differential between the traditional grocery formats and the mass-merchants and wholesale clubs, reducing the loss of market share to these alternative formats.

Grocery supply chain inventories will drop as products move more quickly from packing line through to the check-out counter. In dry grocery this will cut the supply chain inventory 41% from 104 days of supply to 61 days.

The cost savings achieved through ECR result from both cost reductions throughout the chain and from financial savings as inventory and fixed asset productivities are increased. Four strategies to achieve these benefits have been defined and are discussed in detail in the report. These strategies and their objectives are shown in Exhibit 3.

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Exhibit 3:

ECR Strategies	
Strategy	Objective
Efficient Store Assortments	Optimize the productivity of inventories and store space at the consumer interface
Efficient Replenishment	Optimize time and cost in the replenishment system
Efficient Promotion	Maximize the total system efficiency of trade and consumer promotion
Efficient Product Introductions	Maximize the effectiveness of new product development and introduction activities

The projected savings from each of these strategies and the major impact areas from each are summarized in Exhibit 4.

Exhibit 4:

ECR Dry Grocery Savings As % of average consumer prices				
Strategy	Cost Saving	Financial Saving	Total Saving	Major Impact Areas
Efficient Store Assortments	1.3%	0.2%	1.5%	Increased sales and gross margin per retail square foot, increased inventory turns
Efficient Replenishment	2.8%	1.3%	4.1%	Automated retail and warehouse ordering, flow-through logistics, reduced damages, reduced supplier and distributor wholesale inventories
Efficient Promotion	3.5%	0.8%	4.3%	Warehouse, transportation, administrative and manufacturing efficiencies; reduced forward buy and supplier inventories and warehousing expense
Efficient Product Development	0.9%	neg.	0.9%	Fewer unsuccessful introductions, better value products
TOTAL	8.5%	2.3%	10.8%	

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In addition to these tangible benefits there are important intangible benefits for consumers, distributors and suppliers. These benefits are too subjective to quantify but will have significant value to the system participants because they sharpen the competitive differences between them and non-traditional food retailers.

Exhibit 5:

Intangible benefits of ECR	
Consumer	Increased choice and shopping convenience, reduced out-of-stock items, fresher product,
Distributor	Increased consumer loyalty, better consumer knowledge, improved supplier relationships.
Supplier	Reduced out-of-stocks, enhanced brand integrity, improved distributor relationships.

5. WHAT DOES ECR INVOLVE?

There are many elements of ECR, many of which have been developed within the grocery industry. Other elements have been adapted to the grocery industry from other industry strategies such as Quick Response in the general merchandise industry and Total Quality Management in manufacturing industry.

There is nothing in ECR which is not being done today in the grocery industry or in another industry. To assist distributors and suppliers assess where they are today and what their goals should be over the next 2 to 4 years the ECR elements have been divided into two phases - Best Practices Implementation and Full ECR Implementation.

The Full ECR Implementation builds on the Best Practices implementation and contains elements which are currently in limited use, are in development or are being planned by leading-edge companies. Within two years, the time it will take to fully implement current Best Practices, these elements will be sufficiently implemented to be a new set of Best Practices to be implemented industry-wide in 1995-1996.

The Best Practices Implementation is achievable by every grocery supplier and distributor within two years. All of the elements are being done today by several suppliers or distributors. When fully implemented, this phase will produce about two-thirds of the total projected ECR cost benefit, but no-one is able to achieve such savings today because of the lack of critical mass in the industry.

The critical mass problem arises because until a significant proportion of a company's trading partners have implemented an element the benefits to the company are limited. There are many examples of this such as the retailer who gets little return for an investment in DEX/UCS capabilities until most of his suppliers are DEX capable, or the distributor who gets little return on his investment in bar-code scanning in receiving until

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Exhibit 6:

PHASE I: BEST PRACTICES IMPLEMENTATION

Achievable in 0 to 2 Years
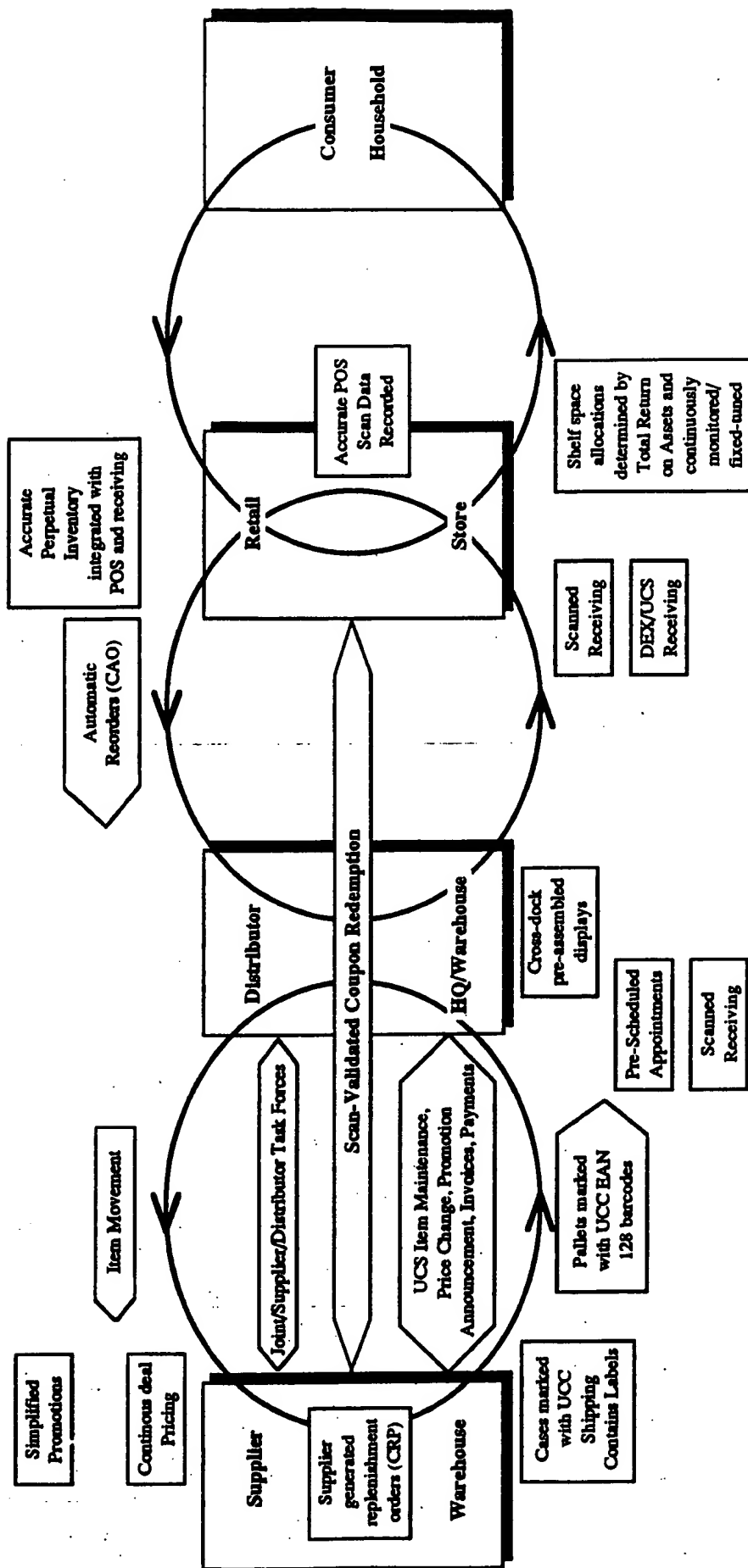
ORGANIZATION: Category/Customer based cross-functional teams within functional structure

KEY PERFORMANCE   Contribution Margin Return on Assets using accurate Direct Product Costs; Cycle Times:
MEASUREMENTS:

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Exhibit 7:

PHASE II: FULL ECR IMPLEMENTATION

Achievable in 2 to 4 Years

Note: Assumes all Best Practices are implemented

Frequent Customer database

Consumer Household

Frequent Customer purchases recorded at POS

Retail Store

Excess receiving/storage areas converted to selling space

Store/SKU open-to-receive based on sales forecasts

More frequent, smaller shipments to stores

Electronic consumer promotion via In-Store POS rebates

Distributor HQ/DC

Joint testing of new products & product improvements

Cases/pallets allocated to stores based on open-to-receive and cross-docked

Weekly orders and forecast updates

Full EDI of invoices, billbacks, coupon redemption, funds transfer

Shipments Preceded by Advance Shipping Notice

Supplier

Warehouse

Carrier pick-up on multi-stop pre-scheduled route

Case sizes optimized for store inventory turn

ORGANIZATION: Category/Customer based Business Team is with Total Return on Assets accountability

KEY PERFORMANCE MEASUREMENTS: Consumer/Customer Satisfaction: Operating Profit Return on Assets at Item/Vendor/Category level using accurate Activity Based cost; Cycle Times; Process Reliability and Yield;

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his suppliers are applying bar codes, or the supplier who gets little benefit in improving manufacturing efficiency from his investment in continuous replenishment until most of his customers are using continuous replenishment.

Practitioners estimate that critical mass will start to be achieved once one-quarter to one-third of their trading partners have implemented an element, with major benefits being realized once one-half to two-thirds have implemented.

6. WHAT ABOUT THE COST?

Unfortunately, ECR can't be bought in a nice, simple package. Fortunately, however, it does not require any single major investment (except for companies with outdated information systems) but rather a continuous incremental investment program over two to four years. Each of these investments offers an excellent payback provided it is implemented as part of a total ECR strategy.

For most companies, a moderate "seed-money" first-year investment will create a self-funding program for future years. Funds for future years capital expenditures can be generated from both inventory reductions and cost savings. Some companies have realized savings as high as 0.3% of sales from the efforts of joint supplier/distributor teams working on truck-loading, handling and deduction improvements projects without any major capital investment.

The biggest costs for many companies adopting ECR will actually be people costs, not financial investments. Cultural change is painful as people have to relinquish familiar habits and practices and adopt new ones. This will require a continuing investment in education and training at all levels, structural changes in organizational reporting relationships and accountability and new performance measurements for business units and for individuals.

7. HOW DO I GET STARTED IN ECR?

The most effective way to get started in ECR is to begin with three concurrent programs:

- **Create a climate for change.**

    For most organizations changing the internal perception of suppliers or customers as adversaries to that of allies will be more difficult and take far longer than any other part of ECR.

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Creating the optimum climate for ECR requires communication and education as well as new performance measurement and reward systems. Above all it requires strong leaders at the top of the organization who consistently demonstrate their personal commitment to change through their words and actions.

This report provides a starting point for an internal education and communication process. Industry conferences and publications will also provide companies with helpful resources to assist in accelerating the internal acceptance of the ECR strategy.

− Select partners for initial ECR alliances.

For most companies just starting in ECR two to four initial alliances are recommended. Begin with each by setting up a one-day meeting at which senior representatives from each functional area of both allies will be present to discuss ECR and how to get started. Set up two or three joint task forces to work on some projects which have been proven to have excellent pay backs, e.g.

- Eliminating invoice deductions
- Improving truck loading and unloading efficiency
- Reducing damages
- Vendor managed continuous replenishment

Success in these programs will start to breed trust and confidence, and creates the necessary platform from which to move onto other more sensitive business issues. This process takes time, and experience shows it may well take 9 to 12 months of continual effort before enough trust is created to discuss many significant issues in an open non-adversarial environment.

− Develop IT (Information Technology) investment program to support ECR.

While many benefits of ECR can be achieved without major IT investment, the companies with the strongest IT capabilities will establish a clear competitive advantage over other companies.

Those companies leading the way in ECR foresee an almost paperless, fully integrated business information system linking them to their business partners within five years. Such systems will manage much of the replenishment function, both reducing headcount and freeing people to concentrate on exception management and on the creative development of products, services and systems.

8. WHAT ARE THE MAJOR OBSTACLES TO IMPLEMENTING ECR?

The major obstacles to implementing ECR are not technological or financial, but organizational. First and foremost is that without strong leadership and commitment from the CEO it is impossible to implement ECR effectively. Only the CEO has the power to break down the organizational barriers that impede progress, and to build the bridges to customers, suppliers, and brokers that will lead to new working relationships.

These organizational barriers are both cultural and functional. The traditional vertical, top-down organization structure, in which each function operates separately and is measured independently, is a major barrier because every ECR change crosses functional boundaries. The measurement systems commonly in use are another major impediment because everyone has been conditioned to focus on the efficiency of individual parts of the system, while no one looks at the whole system.

The measurement system problem can be illustrated by an example that is typical of the issues that surface in ECR - smaller case sizes. With present measurement systems few people see a possible benefit in smaller case sizes - the plant manager doesn't (higher labor costs), the product manager doesn't (higher packaging costs), the wholesale warehouse manager doesn't (higher selection labor costs) and the store manager doesn't (higher stocking labor costs). Yet for many slow-moving SKUs halving the case size and reducing average retail inventories 30-40% would reduce the store overhead chargeable to the product by more than the extra cost at the other steps - i.e. the total system return on investment would be increased.

In implementing ECR new measurement systems will be required. Implementing many of the ECR strategies will require sub-optimization of one or more functional areas to gain even greater offsetting gains in others. Non-financial measures will become more important because they are more actionable, and improved costing systems such as Activity Based Costing will provide more accurate and actionable profitability information on which to base sound business decisions.

9. HOW WILL THE INDUSTRY SUPPORT ECR?

The full benefits of ECR cannot be realized by any company without the active involvement of a majority of its suppliers or customers. While many companies have made significant progress in working with their trading partners in one-on-one alliances, an industry-wide commitment will significantly accelerate implementation and the realization of the ECR benefits.

The industry should set a goal of full Best Practices implementation by the end of 1994 and full ECR implementation by the end of 1996. Both goals are achievable, and many companies will reach these milestones in a shorter period.

This report proposes the creation of a Joint Industry ECR Board of CEO's of distributor and supplier companies. The committee would be co-sponsored by all the grocery trade associations and tasked with accelerating and facilitating the adoption of ECR throughout the grocery supply chain.

Four major activities for the Board and subcommittees are proposed:

- staging an annual ECR Conference to build awareness of ECR and how to implement it

- developing and promulgating Best Practices to help companies starting in ECR reduce implementation time and costs and avoid common implementation problems

- sponsoring pilot projects to validate the benefits of ECR and to develop new Best Practices

- developing systems standards to reduce development and implementation costs.

10. WHAT ARE THE IMPLICATIONS OF ECR FOR GROCERY SUPPLY CHAIN PARTICIPANTS?

Change always has two faces - opportunity and danger. ECR has such profound changes on supply chain economics, and therefore on the competitive position of individual participants, that those companies who adopt ECR early will gain a significant competitive advantage over other companies. ECR allies will pass through much of the supply chain savings to consumers, gaining market share from companies who fail to adopt the ECR strategies.

The rate of change will be much faster than anyone expects, as illustrated by the rapid penetration of QR in the general merchandising industry. Over the last five years retailers like Wal-Mart, J.C. Penney and Dillard's and manufacturers like VF Corporation, Levi-Strauss and Haggar who all adopted QR early have made major market share gains. The casualties of the recession, many of whom are in the chapter, *Action Steps for Distributors and Suppliers*, include many companies who resisted QR and stuck to traditional business practices.

Realistically companies in the grocery supply chain will fall into three groups: those who have already implemented some of the Best Practice elements and will reach Best Practice implementation well before the end of 1994, those who have not yet begun but who commit to reach Best Practice implementation by the end of 1994, and those who fail to reach the 1994 Best Practice implementation goal.

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The early-adopters will start to realize increasing returns from the investments they have already made as more of their trading partners begin implementation. They will maintain their leadership by developing and implementing the remaining elements of ECR well before the 1996 goal, establishing a new set of Best Practices for the supply chain. They will pass through much, if not all, of their savings to the consumer and will achieve growth rates well above the industry average.

These companies, whether retailers, wholesalers, suppliers or brokers, will emerge as the industry leaders of the mid 1990s and will accelerate the expansion of ECR by acquiring the weaker players, hastening the consolidation of the industry.

The second group will realize much but not all of the benefits from ECR as the leaders put increasing pressure on prices and margins. Their implementation will however be less expensive than the early adopters who have funded most of the development costs. They can draw upon the work of the Joint Industry ECR Board and offerings from third-party software and service providers to expedite their own implementation.

The third group will comprise companies whose implementation was ineffective or who started too late to meet the end-1994 Best Practices implementation goal. This group will be at a severe competitive disadvantage by 1995 as the first two groups exert such pressure on prices and margins that it will be difficult to generate the cash-flow to fund the investments to catch-up. Many of these companies will be acquired or will cease operation in the industry consolidation that will accelerate by the mid-1990s.

INTRODUCTION

The Principles of Efficient Consumer Response

ECR is a grocery industry strategy in which distributors, suppliers and brokers jointly commit to work closely together to bring greater value to the grocery consumer. This greater consumer value is created by better products, better assortments, better in-stock service, better convenience and better prices delivered through a leaner, faster, more responsive and less costly supply chain.

The ECR Working Group has developed five guiding principles that concisely articulate the ECR strategy.

Exhibit 8:

GUIDING PRINCIPLES OF EFFICIENT CONSUMER RESPONSE

1. Constantly focus on providing better value to the grocery consumer: better product, better quality, better assortment, better in-stock service, better convenience with less cost throughout the total chain.

2. ECR must be driven by committed business leaders determined to achieve the choice to profit from the replacement of the old paradigms of win/lose trading relationships with win/win mutually profitable business alliances.

3. Accurate and timely information must be used to support effective marketing, production and logistic decisions. This information will flow externally between partners through EDI using UCS standards and will internally affect the most productive and efficient use of information in a computer-based system.

4. Product must flow with a maximization of value- adding processes from the end of production/packing to the consumer's basket so as to ensure the right product is available at the right time.

5. A common and consistent performance measurement and reward systems must be used that focusses on the effectiveness of the total system (i.e. better value through reduced costs, lower inventory and better asset utilization), clearly identifies the potential rewards (i.e. increased revenue and profit), and promotes equitable sharing of those rewards.

Background

The U.S. grocery supermarket format is admired worldwide as a model of retail efficiency. Taiichi Ohno of Toyota Motors credits the U.S. supermarket system as an inspiration in his development of the Toyota Production System, later known as the Just-In-Time production system. Small amounts of product are kept on hand and the customer's act of purchasing triggers a chain of replenishment activity all the way up the supply chain.

> *In 1956, I toured U.S. production plants at General Motors, Ford, and other machinery companies. But my strongest impression was the extent of the supermarket's prevalence in America. The reason for this was that by the late 1940's, at Toyota's machine shop that I managed, we were already studying the U.S. supermarket and applying its methods to our work.*[1]

The supermarket with its high operating efficiencies quickly became the dominant retail grocery format, supplanting the traditional dry grocery store, butcher, baker and green grocer by offering low prices in a convenient, self-service environment. Supermarkets were the innovators in operations as well as in marketing. They were the first industry to adopt the new technology of bar-coded product identification in the early 1970's, a development that led to the founding of the Uniform Code Council in 1972 to administer industry-wide standards from which all would benefit.

The grocery industry was again a leader in the development of Electronic Data Interchange - the direct transfer of information from one computer to another through telecommunications linkages. In 1982 the UCC again played a key role in the development of common industry standards, avoiding the confusion and high cost of individual companies developing proprietary formats for data transmission.

On the supply side the grocery industry also became recognized as a world leader, particularly for its packaged-goods marketing skills. Powerful brands were built through advertising, promotion, packaging and innovative product development as grocery suppliers focused on the desires of consumers for better products and more convenience. To some extent the role of the distributor was changed from the purchasing agent for his consumer to a distribution channel responding to demand created by his suppliers.

In the 70s and 80s the real growth rate of the grocery industry fell as economic growth slowed and as consumers started eating more away from home. To maintain

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[1]Ohno, Taiichi, Toyota Production System, (Productivity Press, 1978), p. 26

historical revenue and profit growth rates, suppliers intensified their efforts to push products through the system by increasing short-term trade promotion spending, while distributors sought lower cost through vertical integration and scale economies. During this period relationships between suppliers and distributors became strained as both struggled to gain a greater share of the no-longer increasing profit pie.

In the late 80's a new threat emerged to the established grocery formats – wholesale clubs and mass merchants captured a growing share of the grocery business through aggressive pricing. These new competitors originated not in the grocery industry but in the general merchandise industry, an industry which historically had lagged the grocery-retailing industry in both operating efficiency and in the use of technology.

A study conducted for the Food Marketing Institute by McKinsey & Co. in 1991 analyzed these alternative formats compared to the established grocery formats. The study showed significant pricing differentials in favor of the wholesale clubs and mass merchants due partially to operating efficiencies and partially to other factors. The study also projected that, assuming no change in relative prices, these alternative formats would more than double their share of the grocery market by 2001.

The study analyzed the business systems of the wholesale clubs and mass merchants, identifying the key characteristics of each:

Exhibit 9:

Business System Characteristics of Alternative Retail Formats

Wholesale Clubs	*Mass Merchants*
• Focused SKU assortment	• Broad SKU selection at sharp EDLP
• Streamlined logistics	• World-class logistics
• Efficient in-store operations	• Customer service philosophy
	• Excellent management systems

Source: FMI/McKinsey & Co.

Although there are distinct differences between these two formats in their assortment strategies, each is supported by an efficient and streamlined logistics system controlled by a sophisticated management system. This observation has led to a growing awareness and concern that while the supermarket system at one time was recognized as the state of the art in replenishment logistics, other retail formats have now caught up with or surpassed the supermarket system in this area.

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The mass merchants developed their logistics capabilities in the general merchandise industry. The wholesale clubs also derived their logistics strategies from the general merchandise industry and two of the four largest wholesale clubs are divisions of the two largest mass merchants (Sam's/Wal-Mart, Pace/Kmart).

A revolutionary change in replenishment logistics has swept through the general merchandise industry in the last seven years in which the entire system is now being driven from front-end POS data. This strategy is known as Quick Response in the general merchandise industry, and although there are distinct differences between general merchandise and food retailing, it appears from the success of the mass-merchants and wholesale clubs in food retailing that many of the principles are transferable to the grocery supply chain.

Quick Response in the General Merchandise Industry

Unlike the food supply industry, the general merchandise supply industry has faced intense competition from overseas for over twenty years. By the early 1980s, domestic producers' share of major segments such as footwear, toys and consumer electronics had fallen below 20%, and import penetration in the apparel segment was reaching the 40% level.

The primary competitive response of the textile and apparel sector in the 1970's and early 1980s was to seek legislative protection from imports while investing heavily in modern equipment. By the mid 1980's the textile and apparel industry was one of the most protected in the U.S. through an import quota system and the textile industry had the highest rate of productivity growth of any U.S. manufacturing industry.

Despite these successes, import penetration in the apparel sector continued to increase. Several industry leaders realized that protectionist measures by themselves would not be sufficient to preserve a strong U.S. apparel manufacturing industry and that other initiatives were required.

In 1984 these leaders formed the Crafted With pride in U.S.A. Council. Funded by contributions from member companies in the apparel, textile and fiber industries, the Council's mission was to promote the benefits of U.S.-made textiles and apparel to the consumer. In 1985 the Council began an advertising campaign which over the last seven years has significantly raised the consumer awareness of the country of origin label on apparel and the consequences of buying imported apparel.

The Council also committed part of its budget to research ways to improve the long-term competitiveness of the U.S. textile and apparel industries. In 1985 and 1986 Kurt

Salmon Associates conducted a supply chain analysis which revealed that although individual parts of the system were efficient, the overall efficiency of the system was very low. In seeking to minimize costs independently of each other the fiber, textile, apparel and retail industries were inadvertently pursuing practices that added significant costs to the overall supply chain. The magnitude of the improvement opportunity surprised everyone, and one key finding in particular caught everyone's attention - the length of the supply chain and the impact this had on the efficiency of the system.

The apparel supply chain, from raw material to consumer purchase, was 66 weeks. Of this, 11 weeks was in-plant time (fiber, textile and apparel), 40 weeks was in warehouses or transit (fiber, textile , apparel and retail), and 15 weeks was in-store. This long supply chain was both expensive to finance and , even more significantly, resulted in major losses as either too much or too little product was produced and distributed based on inaccurate forecasts of future demand.

The overall loss to the system was projected at $25 billion. Two-thirds of this loss was due to markdown losses at the retail or manufacturer level and to sales lost from out of stocks at the retail level. Exit surveys of consumer showed that being unable to find the item they wanted in the right color or size was the major reason that consumers left a store without making a purchase and was eroding store loyalty.

This research led to the development of the Quick Response strategy for general merchandise retailers and their suppliers. QR is a partnership strategy in which retailer and supplier work together to respond more quickly to consumer needs by sharing information on POS activity to jointly forecast future demand for replenishable items and to continually monitor trends to detect opportunities for new items. Operationally, both parties use Electronic Data Interchange to speed the flow of information and activities are jointly reorganized to minimize lead times and costs. The effect of QR on the replenishment cycle is shown in Exhibit 10, where a 75% reduction in lead-time is quite typical.

Exhibit 10:

Replenishment Cycle for Basic Items

Pre-QR	Time (Days)	With QR	Time (Days)
Item sold	–	Item sold	–
Create, approve & mail purchase order	20	Create and transmit order via EDI	4
Enter P.O., pick and ship order	15	Enter P.O., pick & pack UPC - ticketed items by store, ship order	4
Ship via consolidator	10	Ship direct	3
Receive at DC, count, apply price tickets, assort by store and ship	14	Receive at DC and cross-dock	2
Receive at store, restock shelf	3	Receive at store, restock shelf	2
TOTAL	62	TOTAL	15

To validate the projected benefits of Quick Response the Crafted with Pride in U.S.A. Council sponsored three pilot projects with leading retailers in three distribution channels - department stores (Dillard's), national chains (J.C. Penney) and mass-merchants (Wal-Mart). Each retailer selected a vendor partner for the pilot covering a range of product categories (women's blouses, men's slacks and men's suits). The results exceeded expectations and fully validated the projected benefits of Quick Response. All three pilots showed sales increases of 20-25% and improvements in inventory turns of 30%. The sales increase resulted from improving in-stock performance from 70-75% to 95%+, and the inventory turn improvement resulted from the need to carry much lower levels of safety stock because of the greatly reduced lead-times.

The three retailers who conducted the pilots were so impressed by the results that they quickly began to develop similar programs with other vendors. Since these early beginnings these companies have consistently led their segments in Quick Response, and each has grown much more rapidly and more profitably than their competitors.

Although the projected benefits of Quick Response were validated there were some significant barriers to rapid implementation throughout the industry. These concerned the lack of any industry standards for EDI and for item and shipping container identification.

Many leading retailers had already implemented EDI with their suppliers. However, every retailer had its own proprietary system, and suppliers had to design a unique interface for every customer. Similarly, many retailers were using a machine-readable item identification ticket, typically magnetic stripe, bar-code or OCR, but again there was no industry standard. As a result, tickets could not be applied during manufacturing (except for private label merchandise), but had to be applied in the manufacturer's or retailer's DC after the retailer's order was received. Both options added time to the replenishment cycle and were significantly more expensive than applying a ticket during manufacturing.

To resolve these problems, leading retailers and manufacturers formed the Voluntary Inter-Industry Communications Standards Committee (VICS) in mid-1986. VICS role was to develop industry standards for product identification and EDI. After careful research the committee recommended the general merchandise industry adopt the UPC product code pioneered by the grocery industry. A bar-coded carton identification system was adopted, and a set of EDI transaction formats using ANSI X.12 standards was developed.

These breakthroughs led to a rapid acceleration of Quick Response among progressive companies, although there was still some delay while retailers installed POS scanning systems.

Although the general merchandise industry adopted its EDI standards much later then the grocery industry, the utilization of EDI has expanded so rapidly that it has overtaken the grocery industry, particularly for transactions such as the Advanced Shipping Notice which is so important in cross-dock shipping systems.

This history of technology implementation illustrates a fundamental difference in approach between general merchandise and the grocery industries. The grocery industry viewed investments in POS scanning and EDI as cost reduction or productivity investments. Each investment was evaluated and approved based on savings that it generated, but it was evaluated in isolation form the rest of the system. For example, POS scanning was cost justified based on speed and accuracy at the check-out, but very few companies saw any value in the information generated except for sale to third-party research firms. Similarly, EDI transmission of purchase orders was cost justified based on clerical savings in calling in orders on the phone, but in several reported cases lead-times have been lengthened because EDI orders are held for night transmission when telecommunication rates are lowest.

The general merchandise industry's approach was quite different. The investments in technology were evaluated at least as much for their contribution to making information or product flow more quickly and reliably through the whole system as for their individual cost savings. Many individual investments were actually hard to cost justify (e.g. new POS terminals with scanning capabilities in a department store with 70 or more terminals.) Likewise, because order frequencies are lower than grocery, EDI transmission of purchase orders has a lower return on investment in general merchandise than in grocery based on cost savings. What EDI did do, however, was to enable retailers to automatically generate and transmit weekly reorders directly from POS data, increasing their reorder frequency four to eight times and substantially reducing both safety stocks and sales lost to out of stocks.

To the general merchandise industry technology was therefore a means to an end, not an end in itself. Indeed, bar-coding and EDI are commonly referred to as the "enabling technologies" as they allow business partners to move information and product more rapidly and at lower overall cost. In turn, this faster movement of information and product enables the retailer and the manufacturer to better anticipate, detect, and respond to consumers' needs, thereby better satisfying the customer and capturing market share from slower competitors.
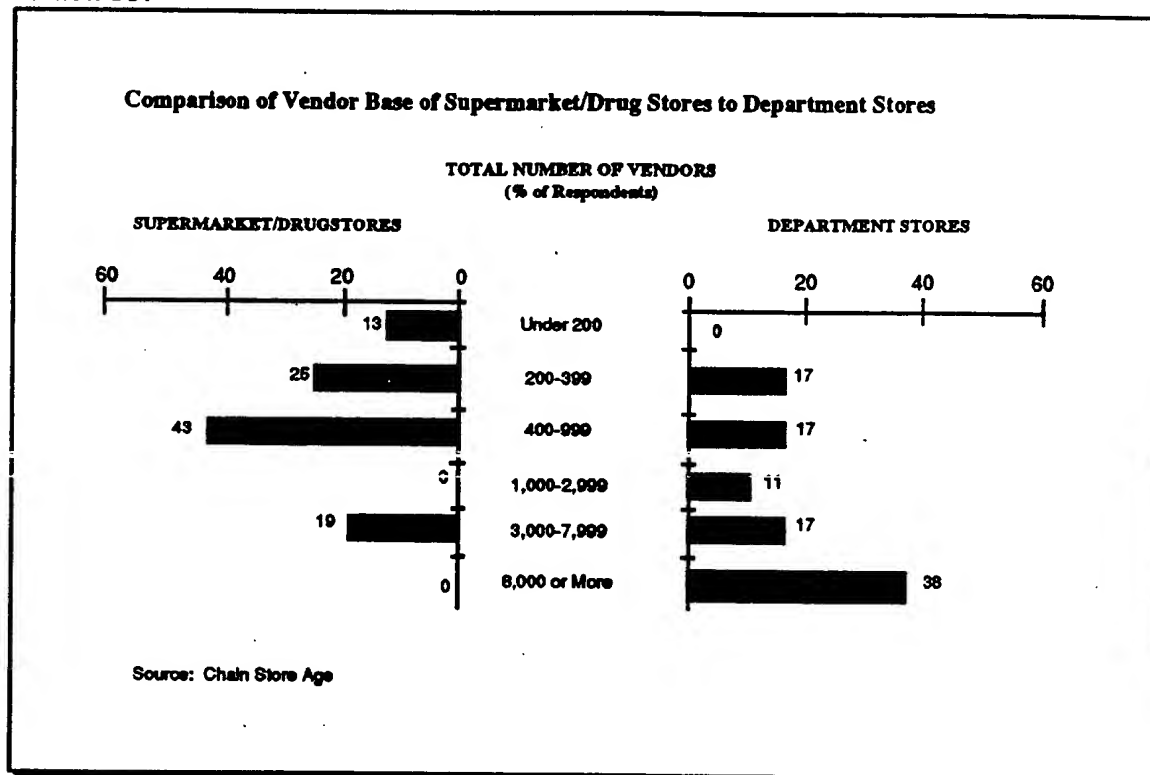
Transferability of QR to the Grocery Industry

While many of the principles of QR apply equally to the general merchandise and grocery industries, it is important to recognize three major differences between the two

systems, the number of vendors, the number of stock-keeping units (SKUs) carried and the rate of movement per SKU.

Department stores deal with many more vendors than most grocery formats. A Chain Store Age Survey (April 1992) showed that department stores averaged 4,528 vendors compared to 1,166 for supermarkets and drug stores. 38% of department stores had over 8,000 vendors while no supermarket or drug stores were in this category.

Exhibit 11:

Comparison of Vendor Base of Supermarket/Drug Stores to Department Stores

TOTAL NUMBER OF VENDORS
(% of Respondents)

SUPERMARKET/DRUGSTORES		DEPARTMENT STORES
13	Under 200	0
25	200-399	17
43	400-999	17
0	1,000-2,999	11
19	3,000-7,999	17
0	8,000 or More	38

Source: Chain Store Age

Despite these huge differences in the number of vendors, more department stores are using EDI than supermarkets and drug stores according to the same survey (78% vs. 63%). It would not appear that dealing with large numbers of vendors presents any obstacles to the implementation of EDI.

While the typical supermarket carries 28,000-30,000 SKUs, a typical department store carries 400,000 to 500,000. This high number of SKUs is a consequence of the range of sizes required and the short life-cycles of many products. The impact of sizes can be illustrated by the men's slacks category. Each style comes in a range of colors, and in a range of waist sizes and leg lengths. A typical department store might carry 30 waist/leg combinations in each of five colors, so there would be 150 SKUs for each style. Since the store typically carries three to six styles from each of its vendors, of whom there might be four or five, the store in total would be carrying 2,500 to 3,000 SKUs in men's dress slacks alone. Because of this SKU explosion at the size level, many retailers assign SKU

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numbers at the style/color level only, thereby losing the size-level detail necessary to reduce out-of-stock problems.

The fashion nature of the apparel and footwear business means that many products have short life-cycles. For example, in women's sportswear most suppliers offer five or six seasons per year, each of which may be broken down into two or three shipping windows of three or four weeks' duration. 60% of the items will have a life with only one shipping window so that retailers are constantly adding new SKUs and deleting old ones.

Since the number of SKUs in general merchandise is much higher than grocery, the rate of movement of an individual item is much slower. A grocery store sells an average five units/SKU/week, compared to one unit per SKU (if SKUs are measured at the size level) every three or four weeks in a department store.

These differences mean that it would be impossible to maintain adequate stock assortments in the grocery industry with the reorder lead times that are common in the general merchandise industry. For this reason, plus the premium on shelf space, inventory is held at a distributor's warehouse, providing a one or two day lead-time for store re-orders.

In developing the ECR strategy for the grocery industry these differences are relevant. Unlike the general merchandise industry the grocery industry does not have a major out-of-stock problem, so the potential sales increases for improved in-stock positions are less than one-tenth as large. However there is some similarity between the general merchandise industry's difficulty in managing short-lived fashion products and the grocery distributors challenge in managing perishable products.

There are many parallels to the pre-QR general merchandise industry, particularly in the way that participants in the system, while pursuing objectives of cost reduction, inadvertently create additional costs elsewhere in the system.

The QR experience is therefore a helpful model for ECR in the grocery industry provided allowances are made for the differences discussed above. Two particular lessons stand out:

1. The success of QR was due to the vision of a few business leaders who saw that the competitiveness of the entire industry could be greatly improved if suppliers and customers worked together, rather than as adversaries, to better serve the consumer.

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2. Technology by itself was not a "silver bullet" solution to the industry's problems. Ways of doing business and internal corporate goals and culture, also had to change. However, technology played a key role in enabling the implementation of the QR strategies by helping information and product to flow more quickly and more reliably through the system.

ENHANCING CONSUMER VALUE –THE ECR STRATEGIES

Introduction

This section describes the ECR strategies and summarizes the projected benefits and costs of implementation. The ECR strategies are described in detail in the sections, *Efficient Store Assortments* through *Efficient Product Introductions* (pages 35-94). The analysis and recommendations focus primarily on the warehouse dry-grocery chain, the segment most impacted by competition from wholesale clubs and mass merchants. The recommendations are applicable to all segments, although the savings will be less in segments where trade promotion is not a major factor.

To ensure consistency in the development of costs and benefits, all analyses and projections are based on a distributor servicing 100 average size stores from one warehouse and HQ location. This model equally represents a wholesaler serving independent retail stores or a regional chain with its own central warehouse.

Most of the benefits described in this section are achievable without the development of new systems and technologies. This level of performance is called Best Practices, and the projected results have been proven by one or more individual companies. Other benefits assume the implementation of changes or of systems now being considered by supply chain participants. All of these systems are being used in other industries and could be developed and implemented in grocery within two years.

All the recommendations are therefore both feasible and practical. Changes that offer interesting potential but which are technologically unproven (e.g. shelf-ready fresh beef) are mentioned where appropriate but have not been included in any of the projected benefit calculations.

The Unlinked Grocery Supply Chain

On average, a dry-grocery product takes 104 days to reach the check-out counter from the time it comes off the supplier's packing line. This is longer than the average for the total grocery chain because it does not include perishables, which are moved much more quickly and bring the overall average to 75 to 80 days.

Dry-Grocery Supply Chain

Packing Line	Supplier Warehouse 38 Days	Distributor Warehouses (Forward Buy 9 days, Turn Inventory 31 days) 40 Days	Retail Store 26 Days	Consumer Purchase

← 104 days →
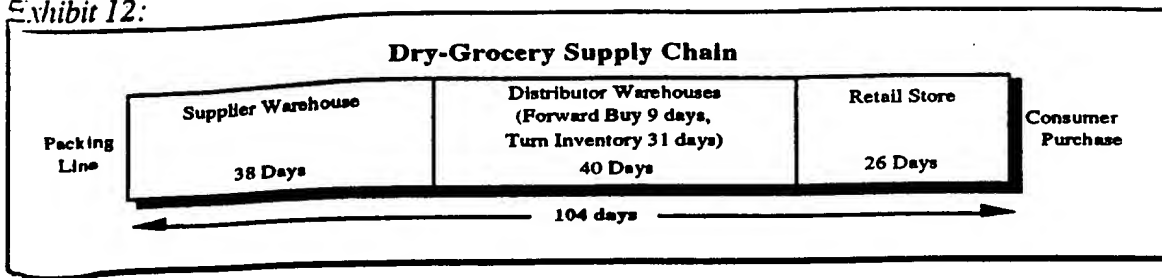
In the current grocery chain there is no single coordinated replenishment system. Instead there are three separate systems joined by inventory buffers at the retail store and distributor warehouse.

Exhibit 13:

Unlinked Replenishment System in the Supply Chain

< **Demand Flow**

Supplier Warehouse — Distributor Warehouse — Retail Stores — Consumer Household

Product Flow >
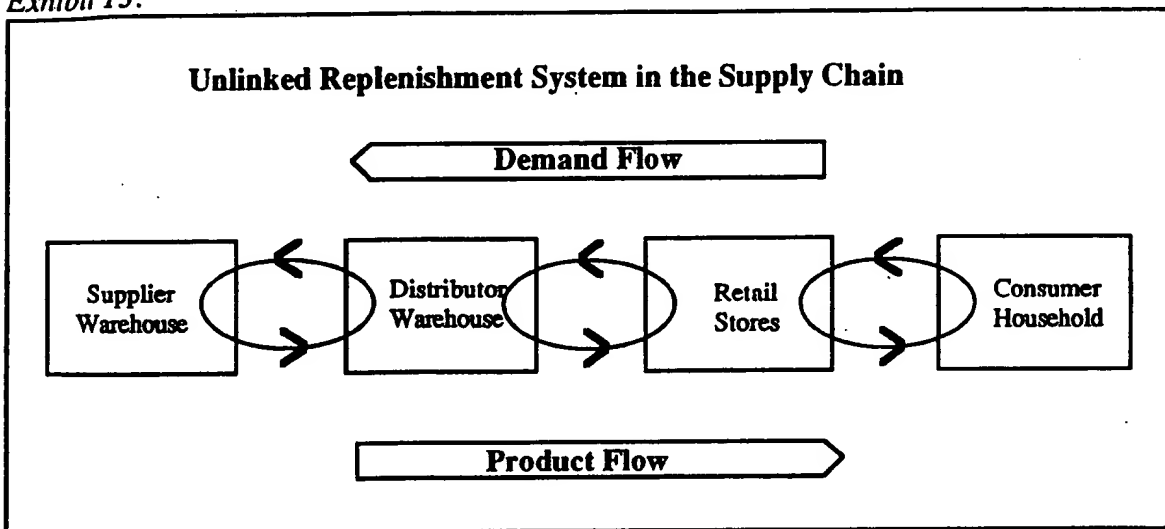
In the typical grocery store, the consumer act of replenishing the household pantry does not directly trigger any replenishment activity. The store replenishment activity is only triggered when the shelf stock (and back-room stock, if any) falls to a predetermined re-order point. This lag can range from a few hours to several weeks, depending on the item movement rate and the level of stock on-hand when the consumer purchase was made. The rate of item movement in a grocery store varies widely (as shown in Exhibit 14) based on a typical store in one distributor's chain. While 22% of items had daily movement, another 22% of items had movement of less than one unit per month. This highlights one of the biggest challenges facing distributors - maintaining an optimum balance between assortment breadth and inventory turnover.

Distribution of Item Movement Rate in a typical store

One to Four
Weeks

Less than One
per month

22%

34%

22%

22%

Daily

One to Seven days
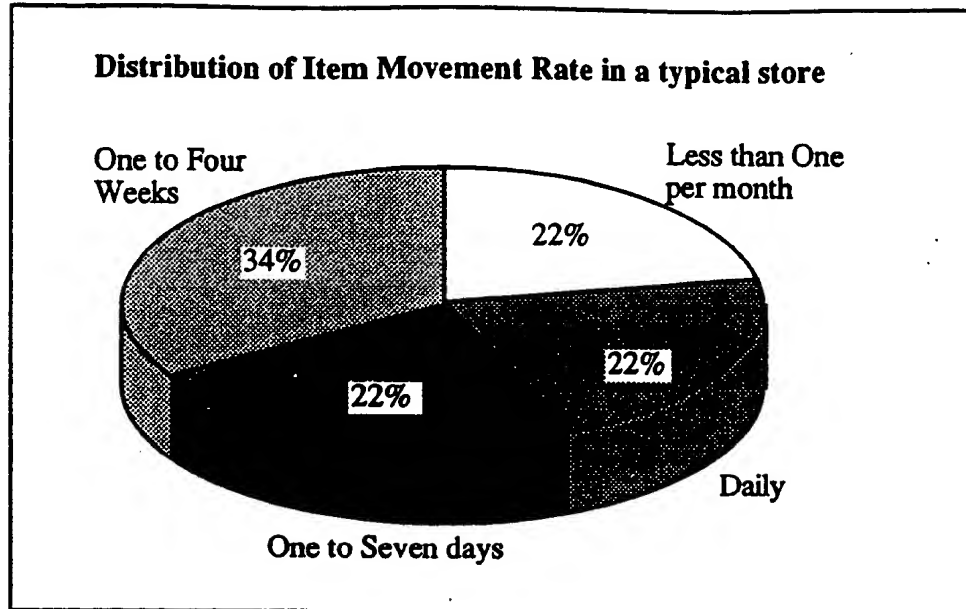
As at the retail store, the act of filling an order does not trigger any replenishment activity at the distributor warehouse. The buyer monitors movement on a weekly or daily basis, focusing particularly on service levels to ensure that predetermined goals are met. When total inventory levels (turn inventory and forward buy inventory) fall to re-order levels the buyer will decide if he or she should re-order. This decision is rarely a simple decision because the buyer must consider factors such as existing deals or deals that begin in the next week or two, offers available on the diverter wire and bracket pricing quantities.

Since gross margin is the primary measure of buyer performance, price opportunities are more important in the re-order decision than service level and turn. (This was also an obstacle in adapting QR in the general merchandise industry.)

As a result of these complications, it may be many weeks between the time a case is withdrawn from the warehouse and its replenishment order is generated. Many distributors are buying 80% or more of their total requirements on deal, so for some items offered with one deal per quarter, the distributor may only place one order a quarter.

Demand information available to the supplier through the current replenishment system is therefore highly distorted by many factors having nothing to do with actual consumer demand. The information is of little value for production planning decisions, and suppliers have to purchase information about consumer buying from other sources such as POS data purchased from third-parties.

To compensate for the lack of quality information on which to base sales forecasts and production plans, suppliers carry high levels of safety stock. This will provide an acceptable level of service to their customers, but also incurs high warehousing and inventory carrying costs.

Linking the Grocery Supply Chain with ECR

The ECR objective is a supply chain in which information and product flow quickly and reliably to where they are needed.

Exhibit 15:

A Single ECR Grocery Supply Chain Without Buffers

Demand Flow

| Supplier Warehouse | Distributor Warehouse | Retail Store | Consumer Household |

Product Flow
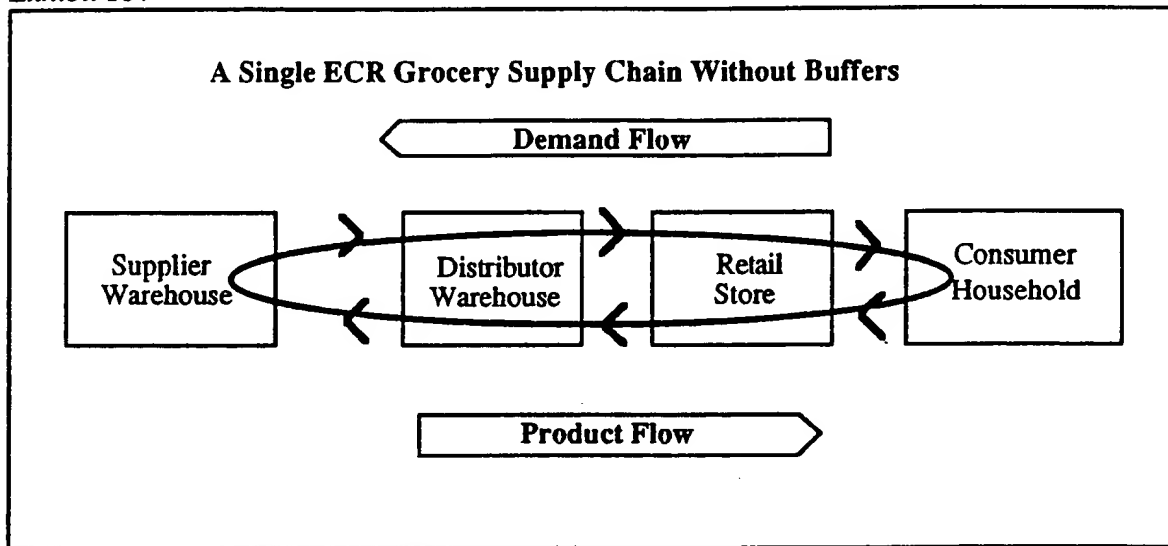
By linking the chain effectively cost and inventories are reduced. ECR will shorten the grocery supply chain by 40% as shown in Exhibit 16.

Exhibit 16:

Comparison of Average Throughput Time of Dry Grocrery Chain Before and After ECR Implementation

Current Dry Grocery Chain

Packing Line	Supplier Warehouse	Distributor Warehouse (Forward buy 9 days, Turn Inventory 31 days)	Retail Store	Consumer Purchase
	38 Days	40 Days	26 Days	

104 days

ECR Dry Grocery Chain

Packing Line	Supplier Warehouse	Distributor Warehouse	Retail Store	Consumer Purchase
	27 Days	12 Days	22 Days	

61 days

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Efficient Promotion refocuses suppliers' promotion activities away from selling-in to the distributor and towards selling-through to the consumer. The flow of product throughout the system is matched to consumer demand, yielding substantial improvements in manufacturing, warehousing and transportation efficiencies and with much less inventory in the system,

Efficient Product Introduction addresses the processes of developing and introducing new products. By working together, suppliers, brokers and distributors will develop better products at lower costs.

Each of these strategies is described in detail in the latter sections in this chapter, and the overall cost benefits are summarized in the next section.

Summary of ECR Cost Benefits

Full implementation of ECR is projected to reduce average consumer prices in dry grocery by approximately 11%. There are two factors in this price reduction, cost savings and financial savings.

Exhibit 18:

Cost Structure of Dry Grocery Supply Chain -Reducing Prices 10.8%

100 = Average consumer price in present dry grocery system

	Present	ECR
(top)	100	89.2
Operating Profit	12.1	9.8
Store Operations	18.3	16.4
Administrative	5.0	4.8
Logistics	8.1	6.2
Selling/Buying	4.1	3.0
Marketing	9.7	8.2
Cost of Goods	42.7	40.8

Source: KSA Analysis
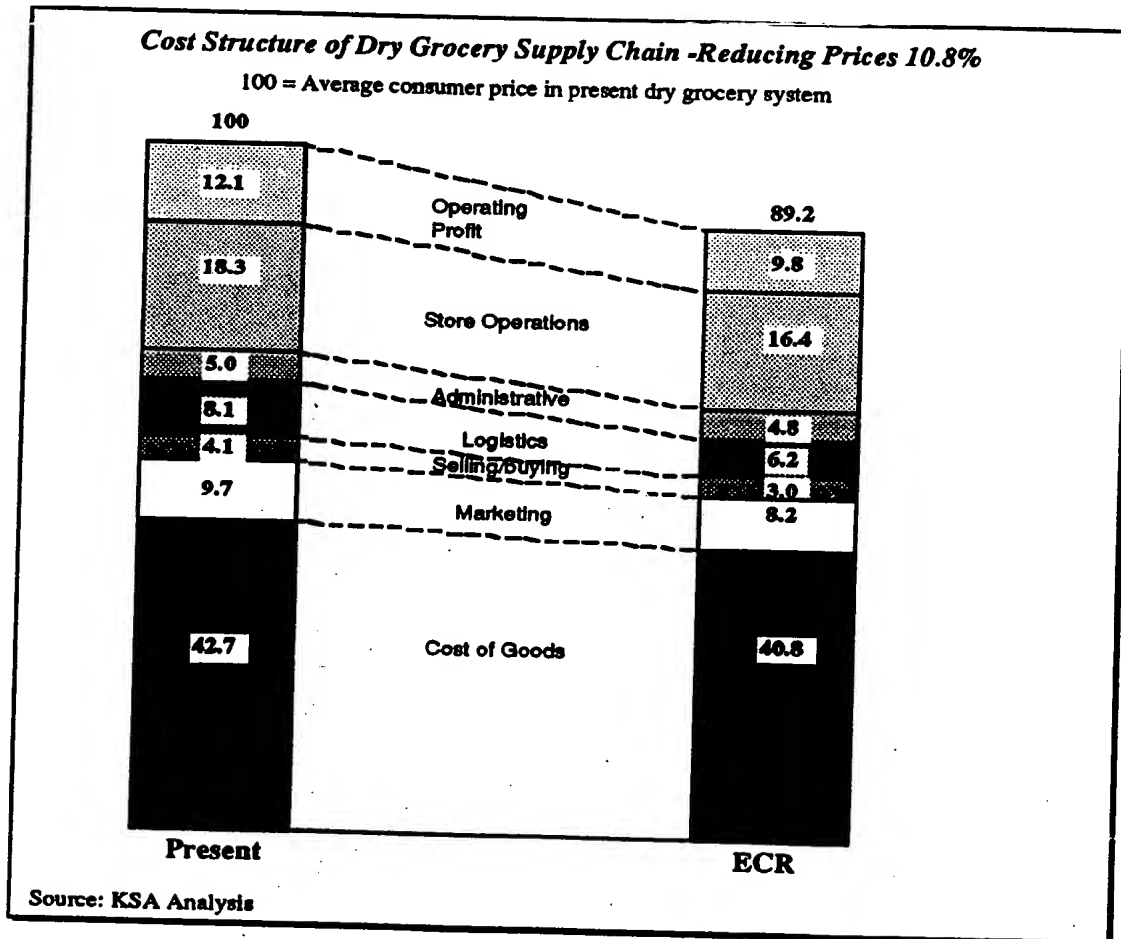
Cost savings include the direct cost reductions resulting from the elimination of activities or expenses and the better absorption of fixed or overhead costs. Examples of direct cost savings are lower administrative costs from the automation of ordering activities, or labor savings when products are cross-docked through the distributor's DC rather than put away and selected. Examples of absorption cost savings are the reduction in fixed overhead per unit or per sales dollar from more efficient utilization of manufacturing capacity or store space.

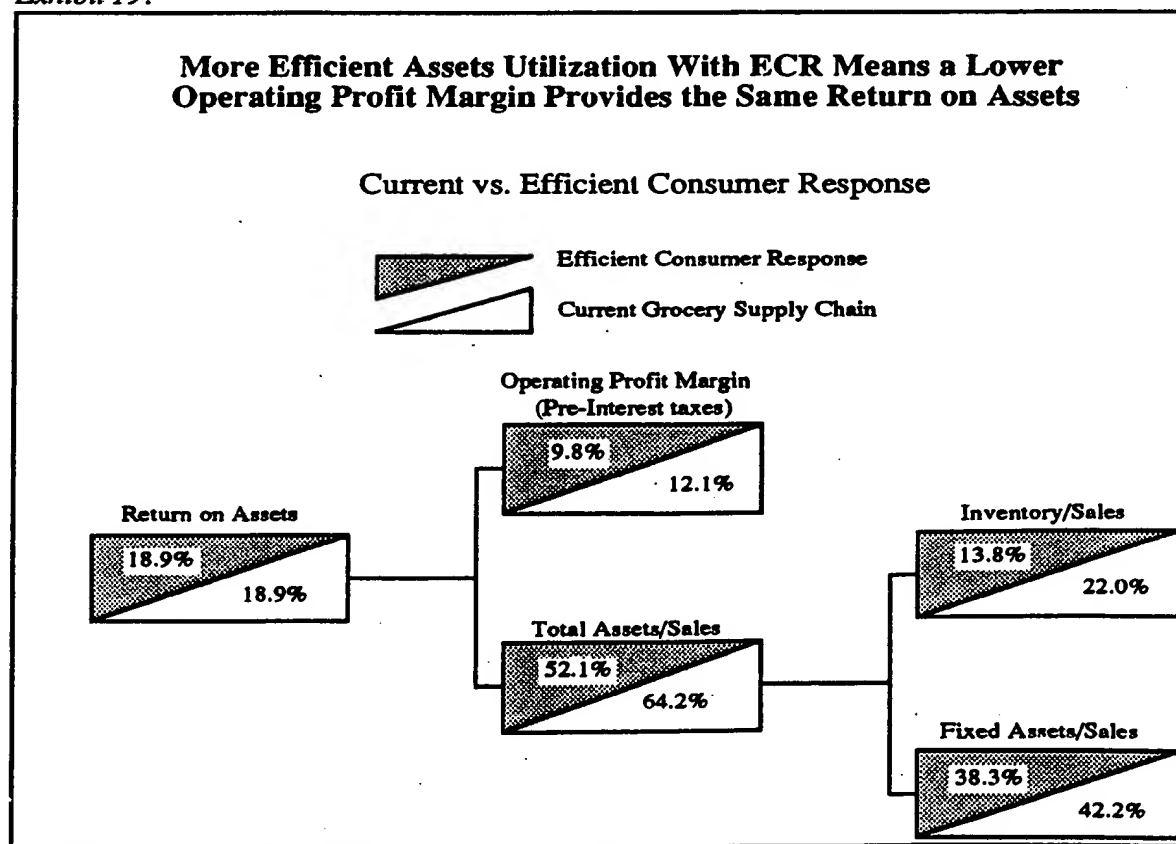Financial savings result when less inventory or fewer physical assets are required to generate each dollar of consumer sales. These asset reductions are not a direct cost reduction but instead allow the system to operate at a lower operating margin and still provide the same Return on Investment for shareholders. The cost benefits calculations for financial savings are based on the assumption that as assets are reduced the grocery system will reduce its operating margin proportionately while maintaining the same level of return on investment on a pre-interest, pre-tax basis. Given the highly competitive nature of the grocery industry this is considered to be the most probable outcome. This is also consistent with experience in the general merchandise industry where suppliers and distributors passed most of their cost savings through to the consumer, which gave them market share growth and company sales growth much above the industry average.

Exhibit 19:

More Efficient Assets Utilization With ECR Means a Lower Operating Profit Margin Provides the Same Return on Assets

Current vs. Efficient Consumer Response

Efficient Consumer Response
Current Grocery Supply Chain

Operating Profit Margin (Pre-Interest taxes)
9.8%
12.1%

Return on Assets
18.9%
18.9%

Inventory/Sales
13.8%
22.0%

Total Assets/Sales
52.1%
64.2%

Fixed Assets/Sales
38.3%
42.2%

The improved productivity of assets in the grocery supply chain results in a 19% reduction in the amount of invested capital required to generate each dollar of final consumer sales. The largest reduction is in supply chain inventories which will decline by 37%. Improved utilization of manufacturing plant and equipment, trucks, warehouse space and retail space will result in a 9% reduction in these assets per dollar of final consumer sales. These changes are shown in Exhibit 20.

Exhibit 20:

Asset structure of the Grocery Supply Chain

Assets per $100 of consumer sales

	Present	ECR
	$64.2	$52.1
Retail	5.5	4.6
Forward buy inventories	1.9	2.5
Warehouse turn inventories	6.4	3.2
Supplier finished goods	4.4	3.4
Supplier raw materials	3.8	
Retail fixed assets	13.6	12.9
Distributor fixed assets	3.7	3.0
Supplier fixed assets	24.9	22.4

Source: KSA Analysis

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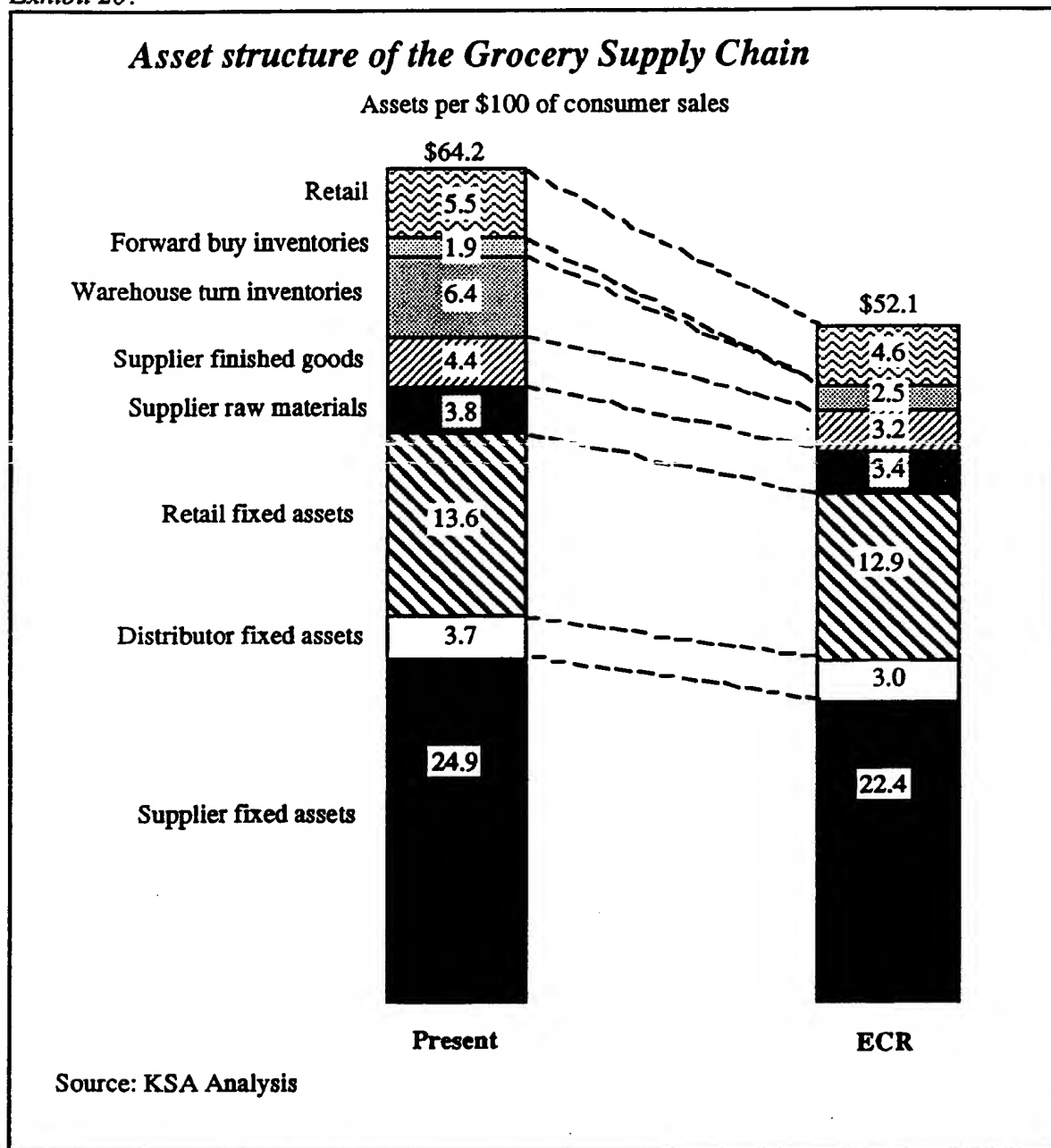
The major sources of savings in each expense area are summarized in Exhibit 21:

*Exhibit 21:*

ECR Cost Savings

Expense Type	Savings With ECR
Cost of goods	Reduced product losses due to damage, reduced manufacturing expense (less overtime, better capacity utilization), lower packaging expense (fewer promotional packs, variety reduction), more efficient raw material purchasing.
Marketing	Reduced trade and consumer promotion administration expense, fewer product introduction failures
Selling/Buying	Less field and HQ resources (fewer deals, automated ordering, deductions reduced), simplified administration
Logistics	More efficient utilization of warehouses and trucks, cross-dock flow through distribution, reduced warehouse space requirements
Administration	Reduced clerical and accounting staff
Store Operations	Automated ordering, higher sales per square foot

Distribution of Cost Benefits

Distributors and suppliers will realize approximately equal benefits from implementing ECR. Overall, suppliers will realize approximately 54% of the total system savings, of which 47% is from cost savings and 7% is from financial savings.

Distributors will realize approximately 46% of the total system savings with a much higher proportion of their savings (14%) coming from financial savings.

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Distribution of Total System Cost Benefits

DISTRIBUTORS **SUPPLIERS**

Cost Saving 32%

Financial Saving 14%

Cost Saving 47%

7%

Financial Saving
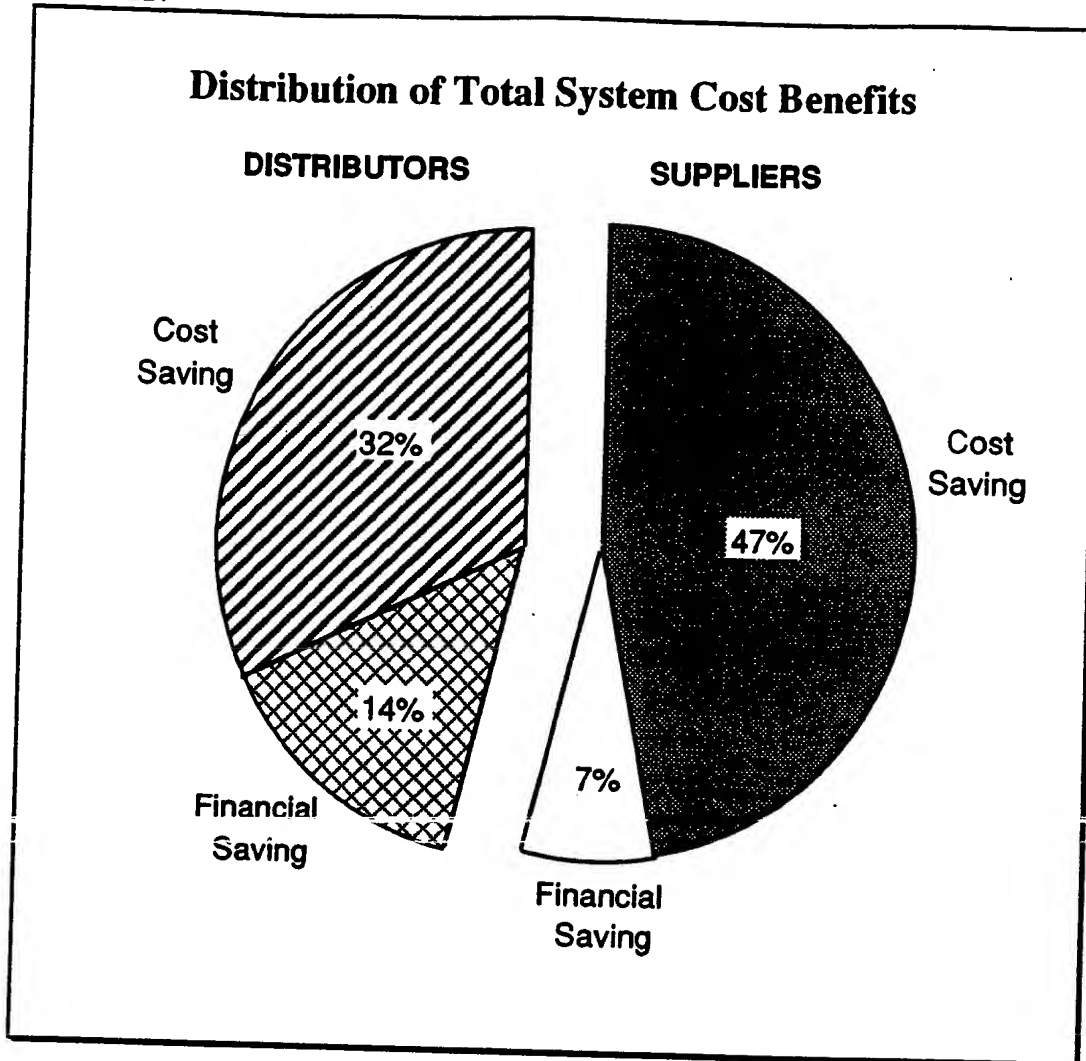
Although the suppliers share of the cost saving is larger than the distributors, it must be remembered that the supplier incurs a much higher proportion of the total supply chain cost (approximately 70%) than the distributor (approximately 30%). When this is taken into account it can be seen that both parties realize a very similar percentage reduction in operating costs.
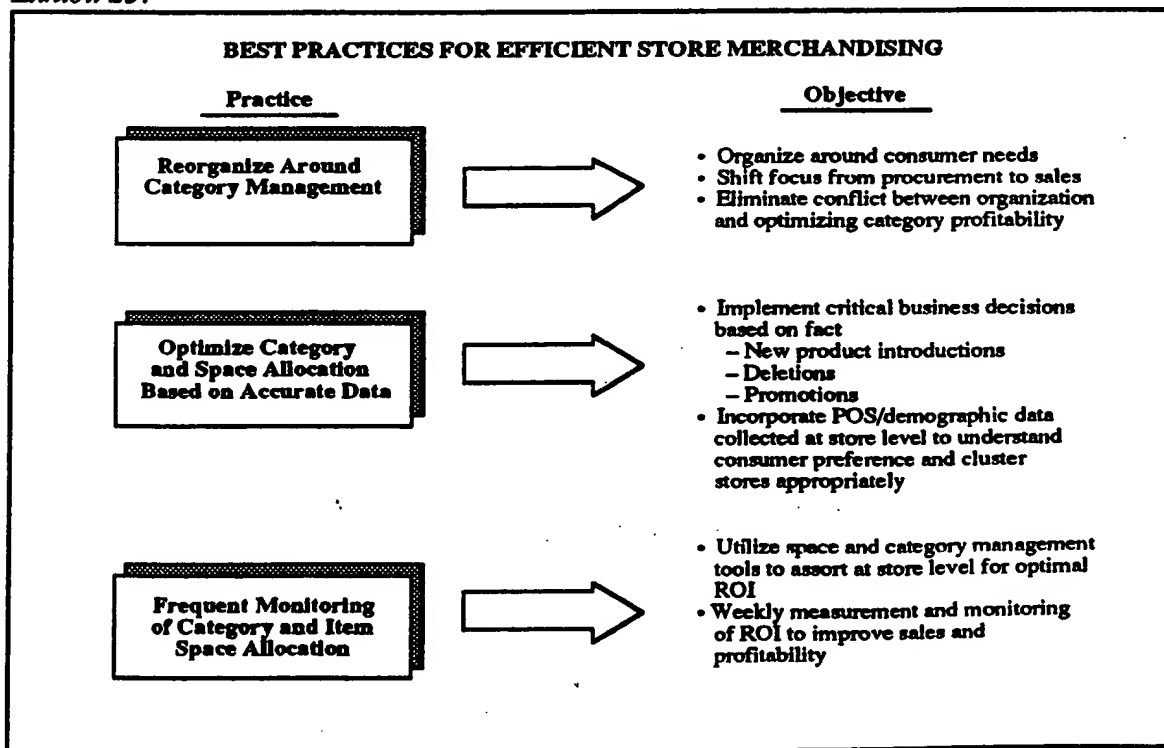
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EFFICIENT STORE ASSORTMENTS

A significant part of Efficient Consumer Response is ensuring that the retail store is assorted to maximize consumer satisfaction while at the same time efficiently using available space to increase distributor and supplier profitability. The efficient store aims at the reduction of non value adding space (e.g. back room space) and the improved use of current floor space. Many elements of ECR contribute to improved store efficiency. However, this section will focus primarily on best practices for category and space management tools, and then briefly discuss the benefit of efficient replenishment in terms of the reduction of back room space and increased fixed overhead absorption.

Efficient Store Merchandising

Several distributors are achieving major benefits through efficient store merchandising, including a 10% increase in overall store volume and a 0.3-0.5% gross margin improvement. This Best Practice performance level is achieved through three practices which are not in widespread use in the industry.

Exhibit 23:

BEST PRACTICES FOR EFFICIENT STORE MERCHANDISING

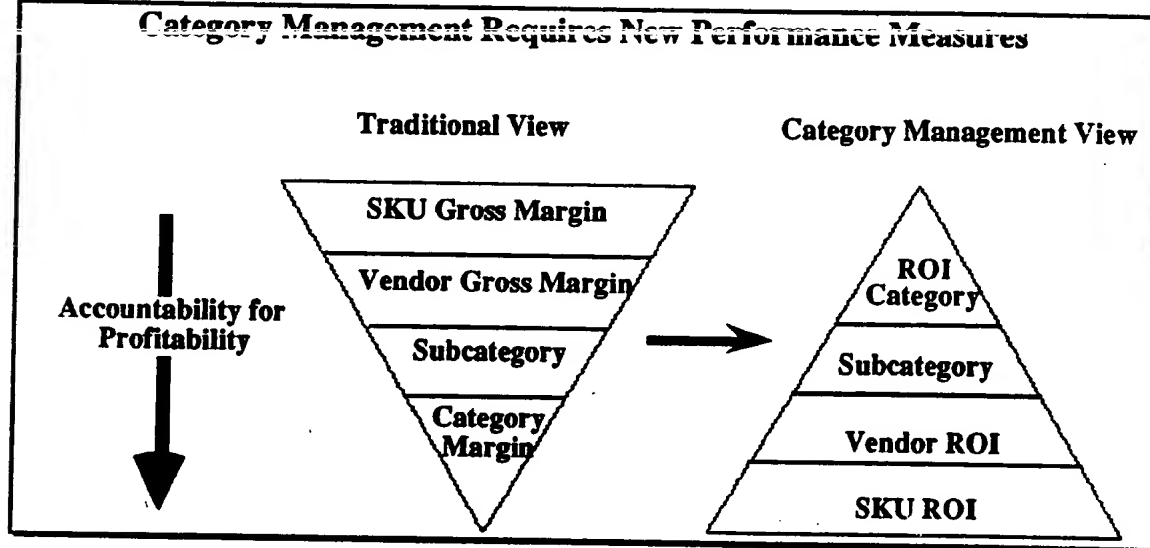| Practice	Objective
Reorganize Around Category Management	• Organize around consumer needs • Shift focus from procurement to sales • Eliminate conflict between organization and optimizing category profitability

Optimize Category and Space Allocation Based on Accurate Data	• Implement critical business decisions based on fact
	  – New product introductions
	  – Deletions
	  – Promotions
	• Incorporate POS/demographic data collected at store level to understand consumer preference and cluster stores appropriately

Frequent Monitoring of Category and Item Space Allocation	• Utilize space and category management tools to assort at store level for optimal ROI • Weekly measurement and monitoring of ROI to improve sales and profitability

A. Category Management

Distributors who are most successful at category management have created an organizational structure based on total category profitability rather than vendor profitability/gross margin by purchase. This type of organization encourages increased concentration on consumer needs by allowing a category manager to offer the optimal breadth and depth of product to consumers. The buyers' focus shifts from buying profitability, achieved through taking advantage of "push" oriented promotion deals, to a focus on actual consumer purchase ("pull"). These companies successfully set store and category space so as to maximize sales with minimal cost and use of space.

Efficient distributors recognize that in order to maximize the benefits of efficient store merchandising, their organizational structure must support the management of category profitability. In a category management organizational structure, buyers/merchandisers together focus on, and are responsible for, overall category profitability including space and inventory performance. Thus, the allocation of space and buying power will be based both on consumers' needs for the overall category and upon total category profitability.

Exhibit 23:

Category Management Requires New Performance Measures

Traditional View
SKU Gross Margin
Vendor Gross Margin
Subcategory
Category Margin

Accountability for Profitability

Category Management View
ROI Category
Subcategory
Vendor ROI
SKU ROI

When a distributor successfully practices category management, it is the organization which determines that success through the use of space management tools and not the tools themselves. Thus, practicing and organizing around category management entails cultural changes within the organization. First, buyers and merchandisers must become extremely comfortable with increased use of information systems within their buying decisions. Secondly, store managers, personnel, brokers and DSD vendors must be very disciplined in maintaining store sets and facings as directed by category and space managers.

B. Space Allocation Based on Accurate Data

The second element in optimal store merchandising is the allocation of store and shelf space based on accurate input factors. Best practice distributors are creating store specific category and item space allocations and are achieving significantly better results than those who are creating planograms at the store cluster level.

Efficient store merchandising using category management ideally includes four input factors. The first three, accurate scan data, adjusted sales history, and an item database are essential to successful space management. The addition of direct product costs or activity based costs into the item database, and point-of-sale consumer identification, are elements that the best space management distributors incorporate into their space allocation methodologies.

(i) Accurate scan data: As a basis for category management, distributors must have accurate scan data from every store. Scan data reflect true consumer demand while warehouse shipments, an alternative to scan data for tracking sales history, only reflect what is shipped into the store. Leading distributors have been able to achieve 95-96% overall levels of accuracy and are approaching 100% accuracy levels in dry grocery.

(ii) Store-level sales history based on scan data properly adjusted for promotion and season: Continual sales history, both raw and adjusted for promotion/season, is a key input to space allocation for leading distributors in category management. However, adjusting sales history to include the impact of promotion on both category and SKU sales has proven extremely difficult for distributors. Several distributors have created sophisticated algorithms which make these adjustments, while others have implemented a database that defines promotion periods and then they use these data to filter out promotional sales. These two processes add significant cost, which could be lessened through a joint industry initiative to outline procedures and techniques that help perform this smoothing.

While the use of historical data is among best practices for distributors in category management, the next level of Efficient Store Assortments will combine adjusted historical

data with future projections to arrive at demand forecasts. These future projections will incorporate demographic data, POS information, and category forecasts.
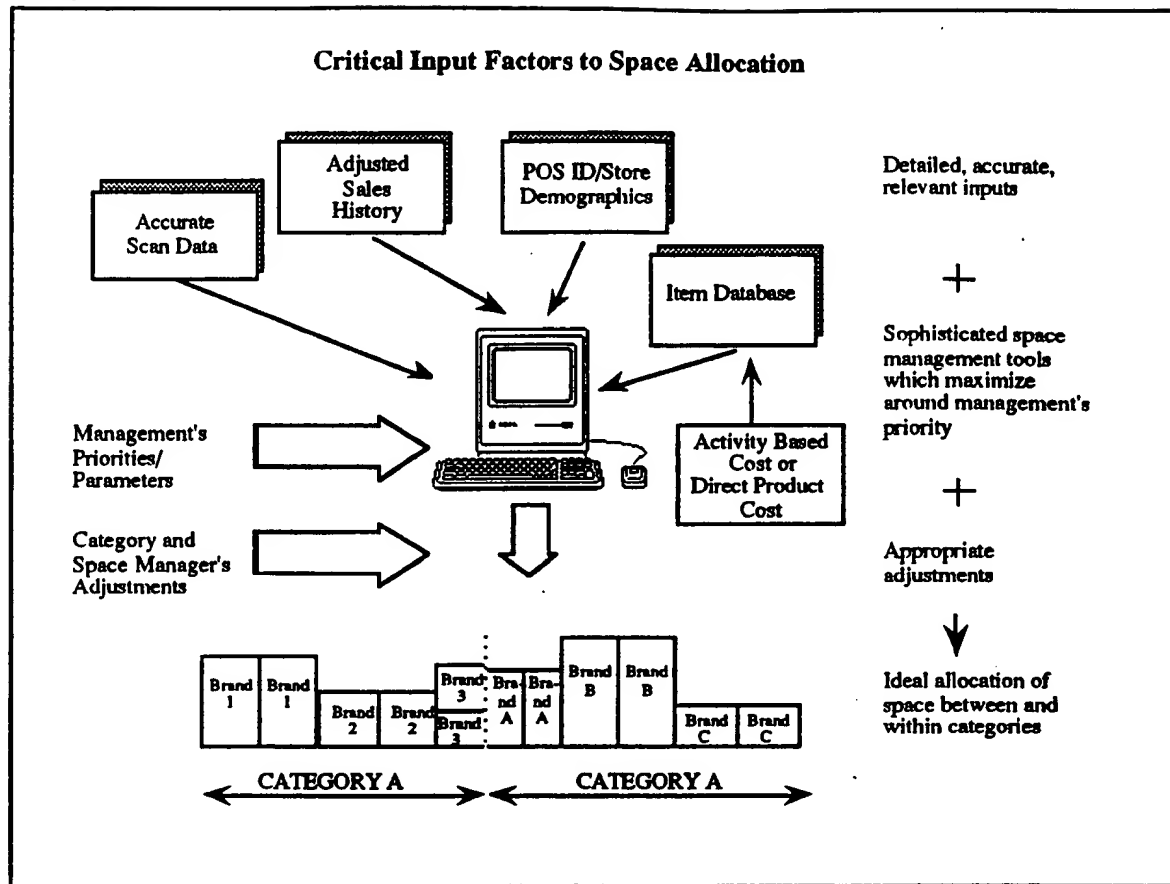
(iii) <u>Item Database:</u> Input factors into the category management system include detailed physical product characteristics (i.e. product dimensions, case quantity, etc.), price, and cost information. The key to efficiently acquiring and maintaining product characteristic information will be the UCS item maintenance transaction. The physical product characteristics and pricing information will be continually updated and exchanged real time between partners, thus allowing for the appropriate changes in space allocation.

Another element in the item database will be a direct product cost or activity based cost figure per SKU. The DPC or ABC cost data would incorporate physical product attributes, gross margins, direct handling costs and, in the case of ABC figures, indirect cost allocated to each SKU. This information is crucial to allocating space to optimize profitability.

Suppliers have a two part role to play at this point in efficient store merchandising. First, they will work with their trading partners to continually update the distributors item database using the UCS item maintenance transaction. Second, and more importantly, manufacturers will continue to look for ways to improve product packaging so as to maximize space efficiency and increase sales per linear foot. Significant product improvements have included such innovations as concentrated laundry product.

(iv) <u>Point of sale consumer identification and demographics:</u> While many distributors are using sales history to generate demand forecasts, consumer identification and demographic information can be invaluable when making decisions for which historical information is not helpful, for example, new product introductions. Furthermore, consumer demographics (i.e. income level, ethnic mix) are the most appropriate parameters around which to form store clusters. Ideally this type of data would be collected through point of sale/smart systems and be enriched by a third party vendor of demographic data.
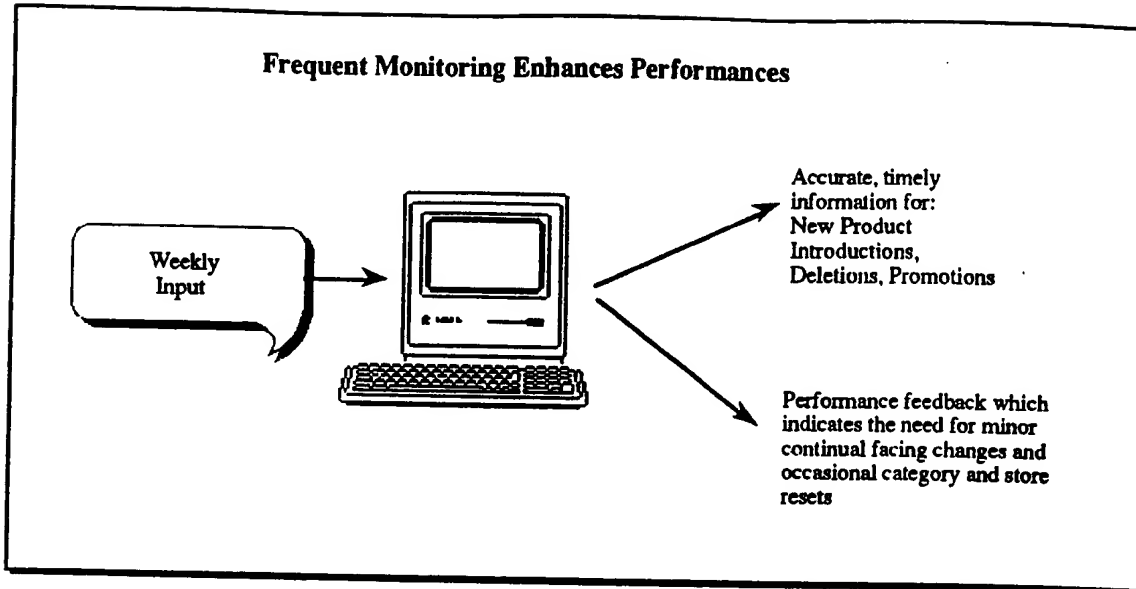
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Critical Input Factors to Space Allocation

Accurate Scan Data

Adjusted Sales History

POS ID/Store Demographics

Item Database

Detailed, accurate, relevant inputs

$+$

Management's Priorities/ Parameters

Category and Space Manager's Adjustments

Activity Based Cost or Direct Product Cost

Sophisticated space management tools which maximize around management's priority

$+$

Appropriate adjustments

Ideal allocation of space between and within categories

Brand 1 | Brand 1 | Brand 2 | Brand 2 | Brand 3 | Brand 3 | Brand A | Brand A | Brand B | Brand B | Brand C | Brand C

CATEGORY A   CATEGORY A

C. Frequent Monitoring of Category & Item Space Allocation

The third Best Practice in optimal store merchandising is the process of managing the business through frequent monitoring of space allocation results. Monitoring frequency varies by category but best practice distributors are running every category at least monthly and many on a weekly basis. While it is inefficient to reset stores on a weekly basis, running the allocation model or reviewing inputs allows the category manager to make highly informed decisions about new product introductions, product deletions, promotion acceptance, and seasonal space allocation. Minor changes to facings on a weekly basis enables a store to continually improve performance without major interruptions for resets. Furthermore, running the models frequently enables the category manager to manage by exception, reallocating space by category when performance drops below a given target ROI.

Exhibit 25:

Frequent Monitoring Enhances Performances

Weekly Input

Accurate, timely information for: New Product Introductions, Deletions, Promotions

Performance feedback which indicates the need for minor continual facing changes and occasional category and store resets

Costs and Benefits of Efficient Store Merchandising

The benefits an ECR distributor will achieve by implementing a store merchandising process similar to the one described above will vary depending on the distributor's current level of space and category management implementation. By implementing a disciplined process for efficient use of store space ,which includes category management and the inputs described above, distributors have achieved 10% to 15% sales increases per store and between a .3 to .5% gross margin improvement. These benefits are the result of much more intensive management focus on store assortments, sales trends and item movement and profitability. The category manager becomes far more attuned to the finer points of his business and is able through real-time experimentation to test the effects of changes in shelf locations, facings, etc.

The key drivers of these sales and margin gains are:

- Store-specific category and item space allocations
- More timely space adjustments for uptrending and downtrending categories
- More effective transitions in seasonal categories
- Greater emphasis on higher volume or higher margin items
- Reduced emphasis on low volume or lower margin items
- Improved pricing strategies to enhance return on investment
- Make space available for broader assortments per category or for new categories or store departments.

Efficient Store Merchandising also produces benefits that are difficult to quantify. Tracking consumer preference and allocating retail space accordingly enables the distributor to offer an optimal selection of merchandise, thus better satisfying the consumer and

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building store loyalty. At the same time distributors can maximize their use of space and are better able to meet consumer demand for additional SKUs, brands, categories, service areas, or more convenient shopping layouts. Furthermore, depth and breadth of selection is a supermarket's key competitive weapon against the wholesale clubs. Therefore, grocery stores run a greater risk of consumer disappointment due to out of stocks than do wholesale clubs. Using sophisticated space/ category management tools within an effective organization, supermarkets sharpen that competitive edge and have the potential for increased market share.

Another benefit of optimal store merchandising is realized in the distributor/supplier/broker negotiation process. The merchandiser's knowledge of product and category performance no longer relies on the manufacturer/broker or an outside data service. Merchandisers can work with their suppliers in order to achieve maximum mutual profitability through a full understanding of SKU performance in each store.

Exhibit 26:

Costs & Benefits of Efficient Store Merchandising

Costs		Benefits	
Description	**% Sales**	**Description**	**% Sales**
Hardware, Software, Install action	.03-.05%	Sales Increase ·	8-10%
Reorganization Cost	.04%	Gross Margin Improvement	.3-.5%
Initial Cost	0.07-0.09%		
Operating Cost	.02%	Increased Customer Loyalty	N/A
		Increased Competitive Advantage	N/A
		Negotiating Parity	N/A

A distributor will incur three types of costs when implementing an optimal store merchandising system: initial investment, operational costs, and organizational change costs. Investment costs include hardware and software investments as well as installation programming. Estimates for hardware, software and installation range from .03 to .05% of sales.

Operating costs include a small staff to maintain and operate the category and space management systems. This staff must combine category/merchandise knowledge with systems knowledge. Total organization head count need not increase as this function will

support the merchandising function where fewer people may be needed versus the traditional buying organization. Estimates for operating costs run about .02% of sales.

The final cost element, and the most difficult to quantify, is the cost associated with the organizational change. It is likely that the total head count will remain fairly constant, however, there is always a cost associated with retraining and change management. This cost ranges from 0.04 to 0.06% of sales.

Backroom Space Efficiency

The efficient use of retail space will not only incorporate front-room space merchandising using category management tools, but also increased efficiency in the use of backroom space. Many distributors, particularly independents, currently use backroom space to hold replenishment stock and to some degree forward buy stock. With a move toward efficient replenishment, distributors will move away from forward buy inventory and toward continuous replenishment, thus reducing the need for backroom space.

Leading grocery stores have reduced the percentage of non-selling space to 18% to 22% of total store space, compared to the industry average of 25% of total store space. Exhibit 27 shows how both efficient frontroom space management and re-engineering backroom use can increase store sales 16%, thus reducing fixed costs as a percent of sales from 8.6% to 7.5%, a 1.1% savings.

Exhibit 27:

Sales Benefit of Efficient Space Management

Space Description	Current Size (sq. feet)	Sales Per Sq. Ft./Week	Sales/ Week	Efficient Space Management Improvement	Freed Space (sq. feet)	Increased Sales/ Week*
Selling Space	27,500 (75%)	$8.75	$241,000	Same Volume in 10% Less Space	2,750	$24,062
Non-Selling	9,100 (25%)	$0	$0	Reduced Need to 20% of total store	1,780	$15,575
TOTAL	36,600 (100%)	-	$241,000	-	4,530	$39,637 or 16% of Sales

* *Assumes average sales per square foot.*

support the merchandising function where fewer people may be needed versus the traditional buying organization. Estimates for operating costs run about .02% of sales.

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* Assumes average sales per square foot.

While it is not figured into the above analysis, several distributors are looking to improve backroom productivity through operational practices such as tray ready meat. Tray ready meat dramatically reduces labor preparation costs and has the potential to reduce the space need both for high cost freezer space, and preparation area.

EFFICIENT REPLENISHMENT

Introduction

Efficient Replenishment is a fundamental supporting platform for the overall ECR strategy. It has one and only one objective:

Provide the right product, to the right place, at the right time, in the right quantity, and in the most efficient manner possible.

This is supported by a free flow of accurate and timely information, integrated with the flow of product, throughout the grocery supply chain. The driving force of Efficient Replenishment is consumer sales data as captured via POS scanners and UPC bar-codes. This is the prevalent method of item-level auto-identification in the grocery industry today. The *Horizon Scan* project conducted by Anderson Consulting confirms that this is a stable technology and will continue to be used well into the future.

This POS-driven integration of systems and logistics will significantly reduce product handling, non-value adding activities, inventory, and associated carrying costs. The result is a paper-less, inter-organizational system with the potential for reducing overall supply chain costs by 2.8% and chain-wide inventory levels by at least 50%. These benefits are roughly split between the supplier and distributor creating an equitable distribution of the fruits of the joint investment in Efficient Replenishment.

Currently, the grocery supply chain contains three independent information and product flows:

- Store to Consumer (measured by POS data)
- Distributor warehouse to Store
- Supplier to Distributor warehouse

These flows are connected by two separate replenishment cycles (excluding replenishment of consumers' pantry, clearly outside the bounds of Efficient Replenishment). These operate on entirely different principles resulting in distinctly different patterns of product flow.

Inventory is "pushed" into the warehouse by forward buying and trade deals. It is "pulled" out by store replenishment orders (loosely driven by consumer off take). They "touch" one another in the Distributor's warehouse and are quasi-connected by warehouse inventory.

Here, the result of push meeting pull is a buildup of inventories and inefficiencies. However, this unsynchronized operation results in many inefficiencies such as:

- Excess inventory carrying costs
- Increased damages
- Excess administrative costs
- Increased manufacturing costs
- Highly fluctuating manufacturing schedules.

Efficient Replenishment achieves its goal by integrating these disconnected replenishment loops into a single, unified, replenishment loop - from Supplier to Point of Sale. This creates product flows throughout the supply chain that mirror the only true demand in the entire system, consumer off take. In doing so, it also eliminates non-value adding activities from the end of the manufacturing line to the store shelf.

Today, the gap between the current system and true efficient replenishment is wide. Given the effort required to bridge this gap in a single leap, it is more realistic to take a phased approach. Implementation of Efficient Replenishment, within the grocery supply chain can be broken into two natural phases.

Phase I creates a paper-less logistics system supporting the two replenishment cycles operating independently. The elements that compose Phase I exist today (usually not all within a single company) and represent industry Best Practices. Full implementation of Phase I can realistically be completed within two years. Industry leaders are close today.

Phase II builds on the Phase I foundation, integrating the two replenishment cycles into one. This transforms the distributor's warehouse into a true distribution center representing a point in the logistics flow rather than a storage location. Phase II implementation unlocks a host of benefits from Efficient Replenishment.

Phase II will require several technological elements not generally found in the grocery industry today (but existing in other consumer products industries). It is anticipated that within the next two years these will become the industry best practices and will be fully implemented within the next four years.

The following sections describe the systems and logistics elements that define today's best practices with respect to replenishment and the additions required to achieve true efficient replenishment.

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The investments and benefits of each element are estimated. However, two cautions are necessary relating to the estimates of investments and benefits. First, investments are heavily dependent upon the starting point. Each company starts with a different base and thus the investments required vary greatly by company. Those provided here should be used as benchmarks in assessing the relative magnitude of investment for each element.

Second, each element can be though of as a link in a chain. Often benefits accrue from individual links. However, the major benefits accrue from the chain itself in a synergistic manner. That is the benefits of the chain are greater than the benefits of the individual links. Some elements may not be cost justified, but are necessary in achieving the benefits of the overall chain.

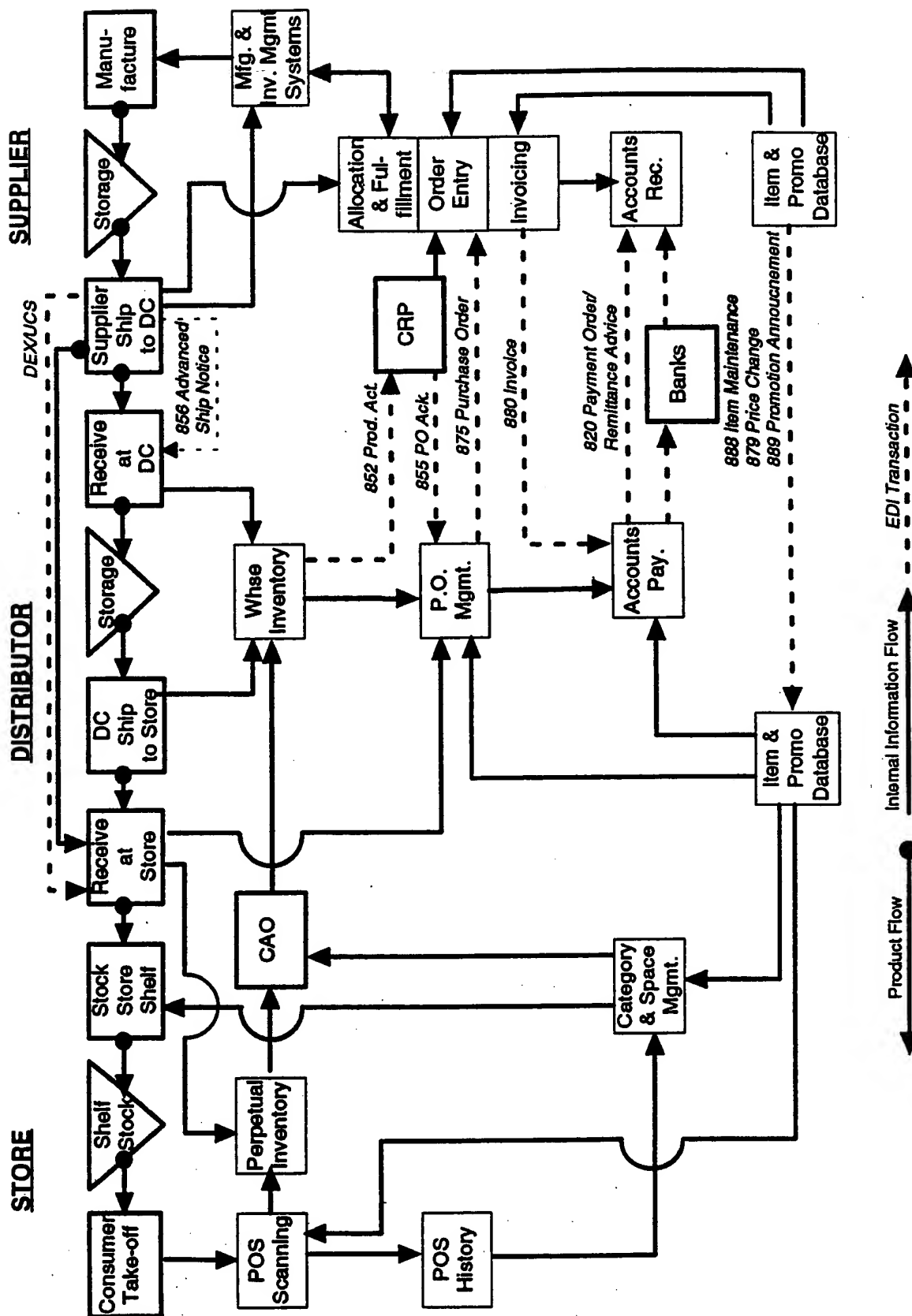## Phase I: Best Practices Efficient Replenishment

Today's best practices in replenishment adds automation to each of the two replenishment cycles while continuing their independent operation. This provides a technological infrastructure for true Efficient Replenishment. The major barriers to be overcome in Phase I are the external and internal integration required to create a seamless inter-organizational system.

The elements that compose the Phase I infra-structure are summarized in Exhibit 28 Associated with each element is the primary implementation responsibility. The integration of these components is depicted schematically in Exhibit 29.

Exhibit 28: Elements of Phase I Efficient Replenishment

	Distributor	Supplier
POS Scanning/PLU Systems	X	
Electronic Data Interchange (EDI)	X	X
Electronic Store Receiving Systems (including DEX/NEX UCS)	X	X
Store Perpetual Inventory Systems	X	
Item Price and Promotion Databases	X	X
Computer Assisted Ordering	X	
Integrated Purchase Order Management Systems	X	
Continuous Replenishment Programs (CRP)	X	X
Integrated Supplier Fulfillment Systems		X
Electronic Funds Transfer	X	X
Automated Accounts Payable Systems	X	
Automated Cash Application Systems		X

Exhibit 29

Best Practices Replenishment

SUPPLIER

- Manu-facture
- Mfg. & Inv. Mgmt Systems
- Storage
- Allocation & Ful-fillment
- Order Entry
- Invoicing
- Accounts Rec.
- Item & Promo Database

DISTRIBUTOR

- Supplier Ship to DC
- Receive at DC
- Storage
- DC Ship to Store
- Whse Inventory
- CRP
- P.O. Mgmt.
- Accounts Pay.
- Banks
- Item & Promo Database

STORE

- Receive at Store
- Stock Store Shelf
- Shelf Stock
- Consumer Take-off
- CAO
- Perpetual Inventory
- POS Scanning
- POS History
- Category & Space Mgmt.

DEX/UCS

856 Advanced Ship Notice

852 Prod. Act
855 PO Ack
875 Purchase Order
880 Invoice
820 Payment Order/ Remittance Advice
888 Item Maintenance
879 Price Change
889 Promotion Annoucnement

EDI Transaction
Internal Information Flow
Product Flow

Implementation is taking place today. The benefits that have been achieved are real or projected in the near future. These benefits can be categorized into the following areas:

- Store Replenishment
- Front-end Warehouse Replenishment (Order through Receipt)
- Back-end Warehouse Replenishment (Invoice through Payment)

The elements of Phase I Efficient Replenishment are described the following sub-sections within these major categories.

Automating The Store Replenishment Cycle

The primary means of creating retail store replenishment orders in the industry today is through a periodic, manual ordering process where store personnel visually check the shelf stock. An order is created for an item when this manual inspection reveals a low or empty shelf slot. The order is either written manually or, more frequently, a hand-held scanner is used to scan the item number from the shelf tag and the quantity is keyed into a hand-held computer. Replenishment orders are then either sent or transmitted over phone lines to the distributor's warehouse.

This re-order process is usually repeated four-to six times per week per store. This labor intensive process adds a tremendous amount of non-value adding time to the store replenishment process with each order consuming two to four hours of store administrative labor. The frequency of ordering can dramatically impact the in-stock position of high-volume items within a store with less frequent ordering resulting in out-of-stocks even in smaller stores.

Further, with the present system, when a shelf tag is lost and/or the space has been faced over with other product, the re-order cycle can be broken cutting off sales of an item authorized in the store. These two factors combined can create significant out-of-stock problems and result in lost sales. The industry estimates the magnitude of these losses at 1%-3% of distributor sales.

Computer Assisted Ordering (CAO) automates the generation of the store replenishment orders and is applicable in most grocery categories (dry grocery, HBC, frozen). This will eliminate the manual labor required to create the store replenishment orders. This has the potential for saving 0.1%-0.3% in store labor costs alone. The range accounts for size of store and ordering frequency.

Further, CAO systems do not rely on the existence of a shelf tag and can be run daily. Therefore once an item is authorized in a store, it will continue to be re-ordered and

1. Thus, a CAO system adds the additional benefit of out of stock reduction which
ults from infrequent ordering or missing shelf tags. This adds a further benefit by
rginally increasing store sales. This is conservatively estimated to increase sales by
%. The only operational cost of the CAO system is the cost associated with computer
ge.

Required to achieve these benefits are four key elements:

- Accurate POS Scanning
- Electronic Store Receiving
- Perpetual Store Inventory
- Computer Assisted Ordering System

The success or failure of a CAO system is dependent on the accuracy of the store-
U level perpetual inventories. These in-turn are dependent upon the accuracy of the
S scanning and electronic receiving systems. Therefore, the internal integration of these
ritical.

curate POS Scan Data

Today, there are two major reasons for POS scanning. First it, is used to maximize
efficiency of store direct labor and to speed the process of customer check-out by
viding the Price Lookup (PLU) function. Second, the POS scanner data is used as a
ail profit center as the data is sold to third-party marketing services. Neither objective
ces a high value on data accuracy. In fact, the labor efficiency objective encourages the
of the multiple item key on the POS register resulting in corrupted sales data when
ltiple "flavors" of a product are sold at the same price.

Progressive distributors are looking beyond these two uses of POS data and
lizing that acceptable compromises can be made in store labor efficiency to achieve
arly 100% scan data accuracy. POS data drives Efficient Replenishment and therefore a
gh value is placed on its accuracy down to the individual "flavor" of a range of similar
oducts.

Best Practice distributors have gone as far as disabling the multiple key on their
)S equipment. This makes the correct way the only way possible exhibiting a top-
anagement philosophy that every unit must be scanned. These distributors are achieving
arly a 100% unit scan rate on dry grocery, HBC, and frozen items. They are confident
ough in the data quality to use it on an operational basis.

)

held computer for DEX implementation (or be required to re-key the receiving document into the distributor's receiving PC).

For DSD deliveries where quantities are determined at time of shipment rather than delivery, NEX (Network EXchange) can be used to electronically transmit the receipt document in advance prior to delivery. This option eliminates the need for the driver to physically carry a DEX terminal and represents a lower investment for the supplier. Quantity adjustments at time of receipt can be entered directly into the store's DEX/NEX terminal.

In addition to the benefits as related to CAO, the DEX/NEX UCS technologies offer other important benefits. First, by acting as an order, receiving document, and invoice all in one, the DEX transaction can significantly reduce the number of invoice deductions resulting from quantity and price discrepancies. This is estimated to eliminate $10,000 in administrative costs per store annually.

The investment required of the distributor in implementing electronic store receiving via DEX-UCS (assuming the stores already have a PC in the receiving area) requires the installation of the DEX software and training . This is estimated at $12,000 per store in software development, integration, installation, and training for a 100 store chain. Thus, by itself, DEX-UCS has a 1.2 pay-back period for the distributor. Coupled with the benefits of CAO, this pay-back period is further reduced.

Today's progressive retail store has already installed these mechanisms for capturing store receipt information. The bottleneck in utilization of this technology seems to be that suppliers are hesitant to invest in the technology until a significant number of stores have done it. Other distributors are hesitant to invest in DEX/NEX UCS until a significant number of the suppliers have done it. This catching the industry in a vicious circle of inaction - the chicken or egg syndrome.

To implement DEX-UCS, the supplier must equip each delivery person with a hand held terminal, install the software, and train the drivers. This investment is estimated at $5,000 to $7,000 per driver. In addition software development is required to integrate the driver systems with headquarters systems. The cost justification for suppliers is not so straight-forward.

When distributors start forcing non-DEX-UCS suppliers to re-key receipts into their back-room receiving systems, at time of delivery, it will put the burden of non-compliance on the supplier. In this environment, DEX-UCS can expedite check-in of DSD goods. It is estimated that the supplier can reduce direct labor required for DSD check-in by ten to twenty minutes representing a savings of $30 to $50 per delivery. Thus, by

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creating a cost justifying environment for the suppliers, distributors can take the initiative for widespread implementation of the DEX/NEX UCS technology. It should be noted that an indirect benefit of DEX-UCS for the supplier is in the area of deduction handling. It is estimated that a supplier must spend $150 to $200 to resolve a deduction. By using the DEX-UCS transaction (which is order, receiver, and invoice all in one), the number of quantity and price discrepancies and the resulting deductions will be significantly reduced. (This assumes that both supplier and distributor can maintain accurate item and price files which integrate into their DSD systems. More will be said on this in the following section). The resulting decrease in deduction volume alone can often cost justify the DEX-UCS investment.

Store-SKU Perpetual Inventory

Integration of the POS scanning and electronic receiving systems provide the means for maintaining accurate store level perpetual inventory systems which provide the basis for CAO systems. For operational use of this data, the accuracy of the two data inputs cannot be emphasized enough. It is achieving accurate inputs where the major investment is required.

Once accurate inputs from POS scanning and electronic receiving are attained, an additional investment, estimated at $5,000 per store, is required for the development, initialization, and installation of a store-SKU level perpetual inventory system. This system combines these inputs to maintain, on an on-going basis, the quantities of each item in each store.

Some question the feasibility of store-SKU perpetual inventory systems given the high volumes of data and relatively low levels of inventory (errors of one or two units represent a very large percentage error). However, these systems have been successfully implemented in other retail channels of trade where the numbers of items in a store are orders of magnitude greater than in a typical grocery store. So this argument against store-SKU perpetual inventory systems is, at best, weak.

Cycle Counts Support Perpetual Inventories and Aid Shrinkage Control

Since 100% accuracy in scanning and receiving is rarely achieved and because shrinkage can not be captured electronically, a system of periodic store cycle counts is needed to support perpetual inventory systems. First, this provides a periodic means of correcting perpetual inventory figures to account for these data errors and shrinkage. It also provides a partial measure of data capture accuracy upon which store managers' performance can be measured.

Second this provides a means of identifying stores or categories within a store where perpetual store inventories are becoming a problem. This provides a mechanism for identifying problems in either data capture accuracy and/or shrinkage. Once identified, these exceptions can be dealt with pro-actively through education or training, if, upon investigation, it is determined that data capture is the problem.

Alternatively, if investigation reveals no data capture problems, then tighter store controls may be instituted to reduce a chronic shrinkage problem. This system not only supports efficient replenishment, but can also help reduce the cost of shrinkage by pinpointing where problems are occurring and measuring its actual cost.

Computer Assisted Ordering

With the foundation now laid, a Computer Assisted Ordering (CAO) system can be implemented automating the store replenishment cycle. Here is where the investments in the prior three modules really pay off!

CAO systems utilize store perpetual inventories coupled with an order point level to automatically trigger the replenishment orders for items within a store. This frees the store management from the routine task of walking the aisles and manually preparing these orders. This can represents an overall savings of 0.29% of dry grocery sales for the 100 store chain. In addition, CAO systems can successfully be applied to other categories as well with similar savings (frozen, HBC, General Merchandise, Pharmacy)

The CAO system can do a significantly better job than a person can.

* Missing shelf tags do not create out-of-stocks
* Order quantities fill the space allocated
* Back stock is minimized
* Orders are created when needed

CAO systems result in much smoother flow of product into the store tightly coupling the flow of product out of the store with the flow into the store.

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CAO systems result in much smoother flow of product into the store tightly coupling the flow of product out of the store with the flow into the store.

It can also increase overall store sales by reducing store out of stock levels. It is conservatively estimated that a 1% sales increase will be realized from the implementation of a CAO system.

The total investment in systems for the development and implementation a CAO system for the 100 store chain is estimated at $1,000,000 in hardware, software, and development resources. The system is not necessarily a complex one, however the volume of data and the integration required make it a fairly major investment of time and effort.

The preceding four technological elements complete the automation of the Store Replenishment Cycle. The majority of the effort required is in the distributor arena.

Automating The Warehouse Replenishment Cycle

A major challenge in implementing the warehouse replenishment cycle is its inter-organizational nature. No single business entity "owns" the entire cycle as in the store replenishment cycle. It is almost (except DSD) completely "owned" by the distributor. Here, multiple organizations are responsible for managing the various facets of the total inter-organizational system. This requires a high degree of inter-company integration and coordination.

The UCS standards for Electronic Data Interchange (EDI) and Auto-Identification (bar codes) facilitate the external integration inherent in this inter-organizational system.
These provide standards for the capture and transfer of information across company boundaries. When adhered to, these standards enable efficient and effective inter-company integration.

The Horizon Scan project conducted by Anderson Consulting reinforces the stability of these standards as the primary vehicle for electronic business transactions into the future. Whereas, the medium for communications may evolve (direct connect, third party VANs, fast-batch EDI, real-time EDI), the standards themselves will remain the dominant medium for the communication of business transactions into the future.

Several elements are necessary in the Efficient Replenishment infrastructure to facilitate this external integration for suppliers, brokers, and distributors. These elements are enablers for external integration providing the necessary systems infrastructure for efficient replenishment. These integration elements are necessary to gain value from the

other, more operational, elements of efficient replenishment. These integration elements are:

- EDI Communications
- UCS/EDI Translation Capabilities
- Item Price and Promotion Databases

These three elements are described further in the following sub-sections.

EDI Communications & Translation

Both sending and receiving parties using EDI transactions need the capability of communicating with the external party either directly or via third party Value Added Network (VAN). In addition to the basic communications capabilities, they also need the ability to translate EDI transactions from an internally-defined format to the UCS/EDI standard format and vice versa.

The investment in a third party communication and translation software package can vary widely depending on the hardware platform and level of sophistication. PC-based packages can be purchased for less than $1,000. However, transaction volume and difficulty in cross-platform integration limit the effectiveness of a PC solution. Mini- and Mainframe solutions are available in the $100,000 to $200,000 cost range.

In addition to the initial investment in software, there will be an increase in the operating costs for communication as more and more transactions are received via EDI. The cost per transaction is estimated at $0.40 to $0.80 depending upon the size of the transaction, the bundling of transactions, and the time of day. Both the sending and receiving party incur this additional operating expense. It is estimated that a 100 store chain will incur an annual EDI communications charge of $60,000 per year with all ECR supporting transactions implemented with all dry grocery suppliers.

Exhibit 30:   EDI Transactions Supporting Efficient Replenishment

Set#	Name	Primary Purpose	Sender	Receiver
888	Item Maintenance	Provides detailed information on product specifications	Supplier Broker	Distributor Broker
879	Price Change	Used to provide changes in product cost or price	Supplier Broker	Distributor Broker
889	Promotion Announcement	Communicates promotion terms, changes, acceptance	Supplier Distributor Broker	Distributor Supplier Broker .
875	Purchase Order	Specifies Items and quantities requested for sale	Distributor Broker	Supplier Broker
880	Invoice	Requests payment for products sold	Supplier	Distributor Broker
820	Payment Order/ Remittance Advice	Used to make an EFT and/or remittance information	Distributor Bank	Supplier Bank
878[1]	Product Authorization/ De-Authorization	Used to inform supplier of items authorized at stores	Distributor	Supplier
894[1]	Delivery Return Base Record	Used by supplier to communicate delivery of items & quantities	Supplier	Distributor
895[1]	Delivery Return Acknowledgment and/or Adjustment	Used to make adjustments to or acknowledge receipt	Supplier Distributor	Distributor Supplier
852[2]	Product Activity Data	Used to communicate item inventory and movement data	Distributor	Supplier Broker
855[2]	Purchase Order Acknowledgment	Supplier generated purchase order from distributor	Supplier Broker	Distributor Broker
856[3]	Advanced Shipping Notice (ASN)	Provides contents and information relating to a shipment	Supplier	Distributor
830[3] VICS	Forecast	Communicates forecasts for planning purposes	Distributor	Supplier

[1] Used to support Direct Store Delivery (DSD) via DEX/NEX UCS.

[2] 852 and 855 are used to support Continuous Replenishment Programs (CRP). 855 should be considered optional (an Invoice is sufficient).

[3] The 856 and 830 transaction sets are required to support Phase II, true Efficient Replenishment .

Why hasn't EDI Implementation Accelerated in the Grocery Industry?

Although the grocery industry was a pioneer in the use of EDI, it has been surpassed by the mass merchants, department stores, and their soft goods suppliers in the achievement of EDI benefits. Several factors have contributed to this lack of EDI penetration in the grocery industry.

Regional or Divisional Based EDI Operations

Distributors that operate several regional hubs and suppliers that operate through multiple divisions often have regionalized EDI operations mutliplying the implementation effort as each division-region pair "re-invent the wheel". A movement of the EDI foundation to a corporate level or standardization across region/divisions will greatly accelerate the pace at which implementation may occur. This will provide economies of scale as multi-division suppliers and multi-regional distributors implement EDI transactions.

Lack of Clear Vision for Technology Integration

In the soft goods sectors, an inter-industry business strategy, Quick Response, initiated a move to reduce lead times and become more responsive to consumer needs. Non-electronic business transactions added non-value adding activities and lengthened lead times. EDI and standards filled this void. Here, the use of technology followed an overall strategic business vision.

In the grocery industry, the technology was adopted and efficiencies were expected to develop. However, no clear top-down vision for integration had been developed. The result was that the efficiencies did not materialize to the level expected and the technology was blamed. The reality is that this bottom-up incorporation of technology had little chance for success. Without a pre-defined place for the technology in the overall business strategy, it became a "round peg in a square hole". ECR is the overall strategy which will define the fit of this technology into an overall business strategy.

Lack of Internal Integration

EDI alone provides little benefit to an ECR ally until it is integrated into internal systems there is little motive to move to EDI. Without integration, EDI can actually increase costs and lengthen lead times. This realization has slowed its implementation. EDI has predominately been implemented in a vacuum and shoe-horned into traditional processes and systems. This has resulted in EDI being used to pave over older out-moded processes with technology.

To effectively utilize EDI technology, the entire process needs to be re-engineered. This must address both changes in business practices and technology issues. Once the business must address both changes in business practices and technology issues. Once the practices have been addressed, the implementation of EDI becomes less costly and the expected benefits can be realized.

MIS Resources in the Critical Path for EDI Implementation

The MIS function is in the critical path for setting up new transactions and often for implementing additional trading partners on existing transaction sets. Given the scarcity of MIS resources, this presents a serious bottleneck in implementation. One solution is to increase the number of MIS resources for EDI implementation. This brute-force method can work. However, other steps can be taken to minimize the amount of resources required in the implementation of EDI. Some of these options are presented below.

Changing EDI Standards Requiring MIS Resources

EDI standards change over time. The EDI translation software must keep up with these changing standards. Companies using internally developed or out-dated translation software are forced to perform this maintenance internally.

The majority of third party EDI translation software providers provide regular updates to their software to keep up with the changing standards. Therefore, it is advantageous to have package solutions to EDI translation. This frees up MIS resources by no longer requiring them to make programming changes each time the EDI standards are updated.

Customer Specific Mapping Requiring MIS Programming Resources

Although standards exist for each business transaction, there is latitude in using these. Each trading partner uses optional data elements and interprets coded data fields differently. Therefore implementing additional trading partners requires customer-specific mapping of these EDI fields as used by the trading partner to those used internally.

The first step in addressing this issue is to attempt to move toward a more common usage of the standards via inter-industry workshops and conferences using a third party such as the UCC as the mediator. However, it must be recognized that the industry will never move to a totally common standard.

Therefore leading companies have implemented translation software that has this a customer specific mapping feature. These are available from third party software vendors. The leading packages provide a "user friendly" means of performing this mapping such that the set-up of a new customer onto an previously implemented transaction set requires no additional programming.

To overcome the MIS resource bottleneck, leading companies have moved the responsibility for trading partner set-up to the user community. This frees up MIS
To overcome the MIS resource bottleneck, leading companies have moved the responsibility for trading partner set-up to the user community. This frees up MIS resources and can accelerate the penetration of EDI usage. This can cut the amount of time spent setting up a new partner on an implemented transaction down from weeks to as little as one day with little or no MIS involvement.

Item Price and Promotion Databases

Item databases are a necessary element supporting external integration. Without these, the benefits of a paper-less system will never be achieved. These must reside at all "information nodes" of the Grocery Supply Chain (Suppliers, Distributors, and Brokers).

Exhibit 31:   Item Database Contents

Information Type	Example Data Elements
Item Numbers	UPC Number Retail Item Number, Manufacturer's Item Number
Item Information	Item Name Description Dimensions
Pricing Information	Regular Cost/Price Bracket Pricing
Promotion Pricing and Conditions	Promotion Codes Promotion Type Effectivity Dates Performance Requirements
Logistics Information	Case quantities Inner-Pack Quantities Pallet Ties/Highs Truck Loading Information

This information must be maintained on a timely basis to keep the data in synch across the chain. Since the primary source of this data is suppliers, they carry the burden for the timely transmission of this data. Suppliers must allow enough time, in advance of the data taking effect, for updates to be executed at each "information node". Receivers of this data carry the burden of having systems in place that can process and update this information in an expeditious manner.

This data, when maintained in "synch", across the grocery supply chain, will circumvent the "garbage in/garbage out" syndrome that is the norm today. Operating off the same base of information will allow ECR allies to reduce the chance of having exceptions occur due to invalid data creeping into EDI transactions. This is a critical element in enabling useful external integration via EDI transactions.

EDI removes the face-to-face interactions that traditionally were used to validate transactions. Item databases must replace the value that these face-to-face interactions provided. This will vastly decrease the number of transactions (orders and invoices) that

"leak" out of the paper-less system requiring manual handling such as: order coding, adjustments to arrive at logistically efficient quantities, and invoice deductions because of pricing discrepancies between the order and the invoice.

The UCS/EDI transaction sets: Item Maintenance, Price Change, and Promotion Announcement provide the medium for transferring these data across company boundaries. However, these EDI transactions only handle the external integration. To complete the information processing loop these transactions must be integrated with the item databases at each "information node" in the supply chain so that the information contained in these databases can be successfully integrated into operations systems.

The benefits of these databases accrue for both the supplier and distributor in several ways. First these systems represent a savings from purely an administration of information standpoint. These systems and the associated EDI transactions can significantly reduce the clerical effort required to maintain information internally by eliminating the redundant re-keying of information across the grocery supply chain. For the distributor, it is estimated that 0.06% of sales can be saved in item, price, and promotion maintenance alone.

Second, these systems, when integrated into other systems, primarily those that support buying and selling, can produce a secondary level of benefits. Critical here is the internal integration and interfaces of the data in these databases to these other operational systems. These benefits will be discussed in more detail in the sections covering these operational elements of efficient replenishment.

The investment required, for a supplier, distributor, or broker to implement item databases and the associated three EDI transaction sets is estimated at $300,000 for software development, testing, and installation. This cost assumes that an EDI communication and translation system is already in place.

The on-going UCSII pilots have proved the benefits of these systems. These pilots represent the best practices in the area of item data maintenance (a summary of these pilots is provided as an Appendix to this report).

The preceding elements address the necessary elements required for external integration in the automation of the warehouse replenishment cycle. Coupled with these must be a coordinated internal integration process. This involves a potential re-engineering of the entire flow of product and information across company boundaries.

This effort must concentrate not only on intra-company requirements and constraints but the resulting processes must be complementary of those of ECR allies.

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Otherwise, the technologies will simply pave over existing inefficient practices rather than allowing the realization of the true benefits of these technologies. Both external and internal integration are equally important in automating the warehouse replenishment cycle.

The key elements in the warehouse replenishment cycle requiring cross-company re-engineering and internal integration are identified below.

Purchase Order Management(POM)

Today's best practices purchasing systems are fully integrated with:

- Item Price and Promotion Database
- EDI Systems
- Accounts Payable System
- Supplier Fulfillment Systems

These POM systems utilize the item databases to automatically "code" and pre-validate order data with respect to proper item numbers, promotion codes, prices, and routing instructions. This eliminates the "garbage in equals garbage out" syndrome that is prevalent in the industries use of EDI today, thus greatly reducing the amount of manual order handling and the deductions that result when order price and invoice price do not match.

These POM system must also be tightly integrated in the EDI system to create the external link to the supplier's fulfillment system. Orders are then electronically passed to the EDI systems where they are translated into the UCS/EDI standard formats and transmitted to the supplier or broker. Finally, the POM must update the Accounts Payable system so that the order can be matched against the invoice when received.

Assuming that a fairly modern POM system already exists, than the additional development investment is in the integration to other systems. This is estimated at $200,000 for the 100 store model company. This is a highly variable estimate depending upon a number of factors. These include:

- Sophistication of Existing Systems
- Development Environment
- Database Management Systems
- Development Tools
- Age of Current Systems
- Integration Already Incorporated
- Use of Package Software and the Degree of Modifications.

These factors need to be examined by each individual company and used to arrive at their own development estimates.

Supplier Fulfillment Systems

The basic functions supported by the suppliers' fulfillment systems upon receipt and translation of an EDI order are:

- Update the order entry system (validate and edit orders)
- Allocate Product to the Order
- Schedule pick-up/drop-off appointments
- Produce pick/pack documentation
- Print pallet labels
- Release order to the warehouse
- Assemble Order and shrink-wrap pallets
- Apply UPC/EAN Code 128 Pallet labels
- Enter adjustments to quantities (due to system inventory errors)
- Load onto a truck
- Complete Manifesting Information & Prepare Advanced Ship Notice
- Update A/R System for Invoice Preparation.

If the ECR ally sending the order has integrated the item price and promotion database into their order creation process, then these orders will be able to flow through all of these steps with little human intervention. There are certainly people involved in the preparation of the order and scheduling of the shipments, but the non-value adding activities of order coding, quantity corrections, and manual verification of prices can be eliminated. This means that orders can be turned around electronically with very little "leakage" out of this electronic system.

To do this, significant internal integration is required within the suppliers' fulfillment systems. These linkages are summarized below and require individual companies to define these based on the bounds and functionality of their current systems.

integrated with. . .	
EDI In-Bound	⟶ Order Entry
Order Entry	⟶ Truck Scheduling/Appointment
Order Entry	⟶ Allocation
Order Entry	⟶ Warehouse Support System
Warehouse Support System	⟶ Accounts Receivable
Warehouse Support System	⟶ EDI out-bound (ASN)
Accounts Receivable	⟶ EDI out-bound (Invoice)

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A completely integrated system incorporating the basic functional requirements briefly described here and integrated with the other internal systems can represent a major investment for a supplier. A conservative estimate for a single-division supplier with sales of approximately one billion per year would be $2,000,000 in software, development, installation, and training.

This estimate should be regarded somewhat cautiously since the size, number of divisions, organization, and complexity of operating environments varies widely in the supplier community in addition to all the factors listed for distributors' POM systems. Again, suppliers must individually examine their starting point in properly assessing the investment required to integrate their fulfillment systems

The benefits of the integration of the preceding elements in the warehouse replenishment cycle are enormous. It is estimated that by creating orders with valid item price and promotion information, 90% of today's invoice deductions can be eliminated. Distributor, this represents a cost reduction of 0.03% of sales. For the supplier, 0.27% of wholesale sales dollars can be saved by eliminating the overhead required to resolve today's level of deductions.

These aforementioned elements are necessary to automate the front-end of the warehouse replenishment cycle. This creates a paper-less system from time of purchase order creation to the shipment of goods and the generation of the invoice. Automating the "back-end" processes will complete the warehouse replenishment paper-less system from invoice transmission to the settlement. The elements required to do this are described in the next section.

Continuous Replenishment Programs (CRP)

Continuous Replenishment Programs typically refer to the process by which warehouse inventory and movement is transmitted from distributor to supplier and the supplier generates the purchase order. However, whether operated by the distributor or supplier, these CRP programs have made great strides in evening the flow of product in the warehouse Replenishment cycle. This typically results in inventory reductions of over 50% at the warehouse level. A requirement (and some consider it the biggest benefit) of a CRP program is a move away from complex trade promotions. Quarterly net costing arrangements are prevalent in support of CRP programs.

Automating the Warehouse Replenishment Cycle (Back End)

The previous section has described the best practices in warehouse replenishment from time of order creation to shipment of product. In concept, this aspect of the warehouse replenishment cycle is analogous to the store replenishment cycle. It adds

however to the complexities of external interfaces and the inter-system integration required. The warehouse replenishment cycle also differs from the store replenishment cycle in another important aspect, there is a transfer of ownership of goods. (This section also applies to the back-end invoice and payment processes for Direct Store Delivery as well as warehouse replenishment.)

This transference of ownership is an administrative process that adds no value to the consumer. So the associated costs should be minimized. This section describes elements of today's best practices which are being used to eliminate as much of these costs as possible through information systems automation. To a high degree, the success achieved in the back-end is a result of the success in the front end. That is, the largest cost factor in this back-end processing is the administration of deductions.

Currently, only 30% of invoices issued pass cleanly through the system without any deductions. The remaining 70% of invoices result in approximately two deductions per invoice on average. The reasons for these deductions arise for three primary reasons:

Reason for Deduction	%
Discrepancies in Price	70%
Discrepancies in Quantity	20%
Wrong Items Shipped	10%

Price discrepancies result primarily from the complexities associated with overlapping, multi-tiered trade promotion structures. These can also be tied to quantity discrepancies in that the quantities ordered do not tie the most efficient shipment quantities.

Quantity discrepancies result primarily when the number of units received differs from the number of units invoiced. Finally, wrong items shipped arise for several reasons. The simplest case is where the wrong product is shipped. However, more often than not, the actual product is correct but the item number has changed, was not set up in the distributors system, the item has not yet been authorized in the store, or the item received is packed differently than the item ordered and thus has a different number.

In 90% of these cases, the deduction is a result of incorrect data entering the replenishment cycle from the start, at the time of order creation. This is the result of the lack of agreement between trading partners on the data itself, item numbers, quantity breaks, logistics considerations, promotion terms, etc.

With the front-end (i.e ordering) integrated with accurate and timely data contained in item price and promotion databases these deductions can be eliminated. This paves the way for the back-end automation which minimizes the non-value adding costs associated

with transfer of ownership. Until these front-end inhibitors are addressed, it is pointless to attempt back-end automation, because 70% of all transactions will "leak out" of the automated back-end loop and result in no savings.

The automation of these back-end processes are initiated by the creation of an invoice and completed with settlement involves several systems elements. These are described briefly below.

Automated Accounts Payable

At the conclusion of the automated front-end replenishment cycle, the following conditions exist at the distributor:

- Order is updated in A/P system
- Advanced Ship Notice Received via EDI and Quantities updated in System
- Shipment Received and Checked-In
- Received versus ASN Quantities updated in system (minimal with ECR allies)
- Invoice is received via EDI and updated in A/P system

At this point all information required to clear payment resides in electronic format in the A/P database. This triggers an automatic matching process which clears all invoices for payment where no discrepancies exist between the order, receipt, and invoice. Discrepancies result in exceptions which then require manual follow-up. The objective in the overall warehouse replenishment cycle is to minimize these (it is estimated that 90+% of invoices can be cleared automatically)

The payment terms of the order will be used to trigger the creation of the Payment Order/Remittance Advice which is transmitted to the supplier and/or bank for payment. In addition, any bill-back promotion amounts are computed and an Invoice generated which is also transmitted to the supplier.

The benefits of this automatic matching system are estimated at 0.12% of distributor sales. This can only be achieved if a high percentage of orders and invoices successfully match which depends upon the other elements of efficient replenishment like Item Price and Promotion Databases integrated into POM systems. The investment required to implement this element of efficient replenishment is estimated at $200,000 in software development, installation, and training.

Accounts Receivable and Cash Application

When the supplier receives the payment transactions, they can automatically be credited to the distributors account, and applied to the appropriate invoices. Bill-back invoices will also be used to automatically generate another Remittance Advice transaction coupled with an Electronic Funds Transfer back to the retailer. Timely processing of bill-backs will further reduce the number of deductions taken by the retailer for late payment of the bill-back promotional amounts.

The automatic cash application system represents a modest investment, estimated at $200,000. Yet it has the potential for saving a supplier 0.10% of sales dollars. This provides a significant pay-back when a significant enough number of customers who can pay via EDI exist.

Phase II: Efficient Replenishment

Completion of Phase I, Best Practices Replenishment, will result in a paper-less system that automates to a very high degree the flow of information and processing in today's operating environment. That is, two separate and distinct replenishment cycles. Phase II of Efficient Replenishment builds upon the foundation laid in Phase I by integrating these two replenishment cycles into a single unified replenishment cycle connecting the store to supplier.
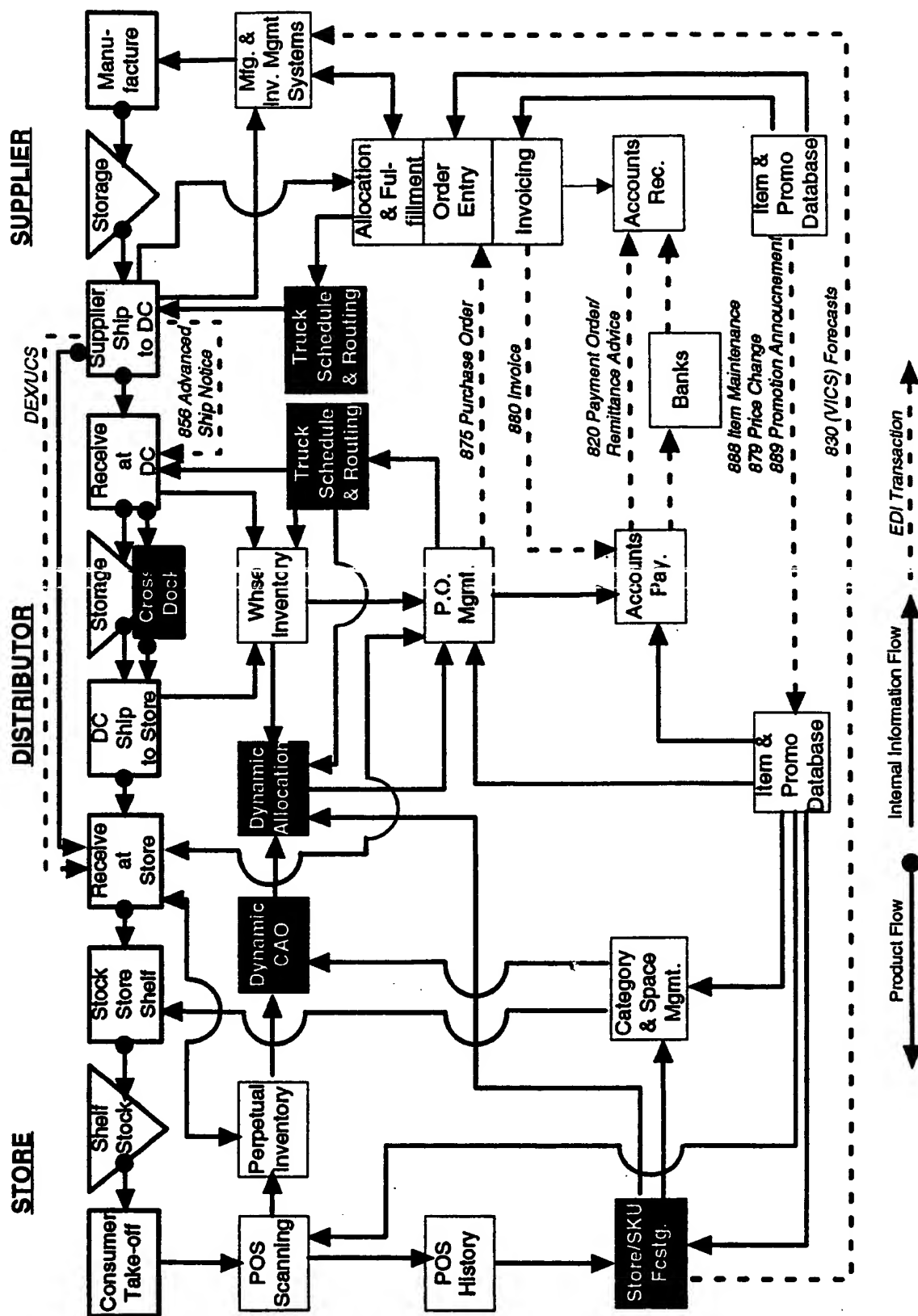
The Phase II platform is composed of both systems and logistics elements with investment and changes being made by both the distributor and supplier. These elements are summarized with the primary implementation responsibilities in Exhibit 32.

Exhibit 32:   Elements of Phase II Efficient Replenishment

	Distributor	Supplier
POS Databases	X	
Store-SKU Forecasting	X	X
POS Forecast Based Planning Systems		X
Dynamic Computer Assisted Ordering Systems	X	
Dynamic Allocation Systems	X	
Electronic warehouse Receiving	X	
Integrated Truck Scheduling & Routing (Distributor & Supplier)	X	X
Pallet & Case Cross-Docking	X	X

The integration of these elements with each other and with the elements of phase I is depicted schematically in Exhibit 33.

Exhibit 33

Efficient Replenishment

SUPPLIER

DISTRIBUTOR

STORE

- Manu-facture
- Mfg. & Inv. Mgmt Systems
- Storage
- Allocation & Fulfillment
- Order Entry
- Invoicing
- Accounts Rec.
- Item & Promo Database
- Supplier Ship to DC
- Truck Schedule & Routing
- Receive at DC
- Storage
- Cross Dock
- Whse Inventory
- P.O. Mgmt.
- Accounts Pay.
- Banks
- DC Ship to Store
- Dynamic Allocation
- Item & Promo Database
- Receive at Store
- Dynamic CAO
- Category & Space Mgmt.
- Stock Store Shelf
- Shelf Stock
- Perpetual Inventory
- Consumer Take-off
- POS Scanning
- POS History
- Store/SKU Fcstg.

DEX/UCS

858 Advanced Ship Notice
875 Purchase Order
880 Invoice
820 Payment Order/Remittance Advice
888 Item Maintenance
879 Price Change
889 Promotion Annoucement
830 (VICS) Forecasts

Product Flow

Internal Information Flow

EDI Transaction

POS History

A primary objective of Phase I was the accurate capture of POS data. This was used on an operational basis to support CAO systems. In Phase II, the role of POS data is expanded in its usage requiring an accurate history of consumer sales for planning purposes. These data will be used to support other areas such as category and space management, forecasting, and dynamic computer assisted ordering. Once captured these data must be retained in a historical POS database of high integrity. This database is coupled with a retail promotion calendar to identify POS data distortions caused by past promotions.

Store-SKU Forecasting

True Efficient Replenishment is driven by using POS data to forecast consumer sales at the store-item level. This level of forecasting has both a basic and promotional component. Promotional forecasting is used to determine adequate store inventory required to support consumer promotions. This triggers promotional orders which arrive in the store prior to the promotion.

To be effective and responsive, the Store-SKU forecasting module must be equipped with a feedback mechanism to constantly compare actual sales with forecasts. This validates forecasts and allows for an update of store-item forecasts on an exception basis. This means that the forecasts are not static but constantly change to reflect the current level of consumer sales. These changes then are used to remodel the retail inventory targets and may require space allocation changes if the new model exceeds the current facing capacity.

Once developed, forecasts are summarized by SKU across the entire chain (or regionally) and passed back to the supplier via the EDI forecast transaction (VICS 830). This information, when integrated into the suppliers' planning systems can provide tremendous value in the manufacturing planning and scheduling processes. It this forecast information, not raw POS data, that will facilitate the smoothing of manufacturing operations with a subsequent reduction in manufacturing costs and excess inventory at the supplier level.

Given the very large number of forecast decisions to be made (at store-SKU level), the support systems can vary widely in terms of cost and sophistication. The most sophisticated system will incorporate neural network processing and/or artificial intelligence systems to highly automate the forecast decision making and effectively leverage the abilities of people in the system.

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The Store-SKU forecasts, described previously, address this weakness and provide the linkage to the next generation of computer assisted ordering systems - Dynamic CAO. Dynamic CAO systems coupled with dynamic allocation and store-SKU forecasting can automatically generate store order quantities both for basic **and** promotional needs. There are two basic differences between the today's best CAO systems and the Dynamic CAO system.

First, the order up to model is forecast and service driven rather than the more traditional case-pack driven assortments. The forecasts are combined with a store inventory model within the Dynamic CAO module to determine the proper stocking level of each item in a store. This model combines the consumer forecasts with service level targets, replenishment lead times, and minimum order quantities to generate retail model stocks and promotional order quantities.

Further, the model varies over time based on anticipated changes in sales volume due to seasonal fluctuations and promotional plans. Finally, if current sales levels change vis a vis the forecast, the forecast is modified to reflect current sales levels resulting in store model changes. These changing models can be implemented on an exception basis so that store and category resets are focused around changing sales patterns. Thus store models are dynamic in two ways - forecast changes in sales volume and changes in forecasts.

The resulting models are input to space management tools to assort the shelves with the proper quantities of each item. The retail inventory model determines the quantity of each item required, the space management tools place these models within the stores' fixtures.

By using forecast driven model stocks the retailer can be assured that store inventories properly balance service with inventory turnover to optimize store inventory performance. This is further optimized by a reduction in minimum order quantities as represented by case or inner pack quantities. As these are reduced a more consistent store inventory turnover is achieved and can increase the number of items that can placed in a store.

For example, if an item is forecast to sell on average four units per week, a case of 24 represents a six week supply. This requires two facings of 12 units per facing (assuming two high by six deep). A forecast and service driven model may suggest that 10 pieces optimally balances service and turns. This would require one facing. This frees one additional facing for a new item of similar movement.

Each sale of the additional item are incrementally additional sales. To achieve these sales levels the minimum order quantity of both items must be 12 to be able to pack out the

item when received. This change to current practices could effectively increase the store's capacity for carrying items by up to 30% with no additional space costs and with the same level of store inventory! In this example the same retail space with same inventory level generates double the sales volume and inventory turnover.

The second key difference in the Dynamic CAO system from the best practices CAO is the re-order algorithm. The dynamic CAO system always reports the difference in the order up to model and the current perpetual inventory. This is a key difference that decouples the CAO system from the minimum order quantity.

These quantities do not represent orders at this time, but rather "open to receive" quantities. Once the store level "open to receive" quantities are generated, they are passed to the dynamic allocation sub-system. It is in this module that these "open to receive" quantities are then combined with forecasts, replenishment lead times, and minimum order quantities. This is explained further in the next section.

The investment required to fully implement a Dynamic CAO system is estimated at $3,000,000 if a distributor has no CAO system in place. This assumes accurate POS data capture and a store-SKU perpetual inventory system are in place as well as the Store-SKU forecasting system described in the prior sub-section. This investment includes the development, testing, implementation, and training required to install this system.

If starting with today's best practice CAO system in place, an incremental investment is required to convert this system to a dynamic CAO system. This involves the development of the retail inventory modeling algorithm to determine store-SKU model stocks and the conversion of the re-order calculation to generate "open-to-receive" quantities. This incremental investment is estimated at $300,000.

The benefit of a dynamic CAO system comes in the form of increased sales and space utilization. This is estimated to achieve further sales increases for the distributor conservatively estimated at 1-2%. This comes from another incremental reduction of out-of-stocks above and beyond what can be achieved with a simple CAO system as well as from additional sales resulting from an increased SKU offering with no increase in selling space. This system also has the potential for reducing store level inventory by up to 25% (assuming the same number of SKUs).

Dynamic Allocation

The best practices replenishment model describes how to best optimize the two separate replenishment loops - Store from warehouse and warehouse from supplier. To create the single, integrated replenishment vision of efficient replenishment there is today a

critical missing link. This missing link is the Dynamic Allocation sub-system. This sub-system takes as its primary input the "open to receive" quantities from the dynamic CAO sub-system and efficiently "sources" the product through a dynamic allocation process.

The first pass is through the retailer's own warehouse inventory. If the product is available, the open to receive quantity is increased by the expected sell-down of store level sales using the store-SKU forecasts and the replenishment lead time until the next store delivery. This produces an expected on-hand quantity at the time the next shipment will be received at the store. If this quantity is greater than the minimum order quantity (case or inner pack quantity), the stores' need for this item is filled from on-hand inventory and the open to receive quantity is filled.

Included in this allocation of on-hand product is a dynamic allocation of scheduled in-bound product due to be received prior or during the next picking waves for the stores. This requires a tight linkage to the in-bound and out-bound truck scheduling module. If product can be allocated from these in-bound shipments then cases in the affected receipts are tagged within the system to be case cross-docked thus making the warehouse merely a transit point for these cases rather than a stopping point. This maximizes the efficiency of product flow from supplier to store.

The remainder of the product must be sourced from suppliers. The first step is a determination of the source and delivery mode. If sufficient quantities exist for a store from a single manufacturer, then the order is prepared with store distribution information so that the manufacturer can assemble the order, palletized by store. These shipments will then flow through the distributor warehouse in a pallet cross dock mode. This minimizes warehouse handling expense with the potential for a logistics savings of $0.11 per case. Assuming 10% of all dry grocery product can be handled in this manner, the retailer will realize a savings of $200,000 per annum.

Pallet cross-dock quantities are netted from the overall store replenishment needs. The net outstanding open-to-receive quantities will be either case cross docked or ordered to replenish warehouse inventories (low volume items). In this process, the individual store replenishment order-lines (quantity by store-item) are sorted by product source and aggregated across all stores' needs. For non-pallet cross-docked orders, the cases will be targeted to fill specific store needs and as described previously be dynamically re-allocated at the point in time when the shipment is in-transit thus allowing product to be re-directed using the most recent open-to-receive quantities.

In this process the total quantity required by item is adjusted to create a logistically efficient load. This takes into consideration pallet ties/highs, pricing brackets, and truck

loading considerations. Once this adjustment is completed this becomes the purchase order quantity with a portion of the order designated for case cross docking.

The additional quantity added to create the logistically efficient load will go into the retail warehouse inventory. This will be the case for low-volume items where insufficient sales volume justifies the logistically efficient order quantity. This excess will then be used to replenish the store replenishment orders until another order is required. This load balancing quantity becomes the "turn" inventory in the warehouse.

Adding the Dynamic Allocation functionality to the Dynamic Allocation System, requires additional investment in software support. This is estimated at $500,000. The benefits of a dynamic CAO system coupled with a dynamic allocation system for the distributor come from:

- Automation of order preparation estimated at 0.06% of sales
- Reduction of warehouse inventory estimated at 0.20% of sales
- Reduction of warehouses Space estimated at 0.07% of sales

For the supplier the automatic creation of pre-validated orders will result in a reduction of 0.35% of wholesale sales from drastically reducing the costs associated with order preparation and validation. Further a reduction in grocery supply chain inventory and handling should cut costs associated with damages by 50% which represent a reduction of 0.30% in wholesale sales dollars.

To achieve these benefits, a supplier must enhance the fulfillment systems and procedures to accommodate pallet cross docking. This investment is estimated at $500,000.

Electronic Warehouse Receiving and Cross-Docking

Upon receipt of the ASN, the distributor can update in-transit information, prepare a receiving document, and open-up the in-transit goods for allocation in the store picking waves that will be active upon receipt of the truck When the truck arrives, the pallets are off-loaded, scanned, quantities checked, and on-hand information updated.

The store-assembled pallets are either moved directly to a shipping dock or staged for the designated picking wave. The nonstore-assembled pallets are then either case cross-docked or put-away, and the put-away locations updated into the system (the receiving document may already have done this with directed put-away instructions).

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At the shipping dock, the store replenishment orders being filled from warehouse inventory in the current wave, the store-assembled pallets, and the cross-docked cases are merged into a single truck and sent on to the store completing the product replenishment cycle.

The efficient building of ASNs electronically and electronic receipt processing relies on the scannability of UCC case codes. Today only approximately 60% of dry grocery cases are UCC bar-coded. Within this 60% the accuracy and low scannability further lessens the usefulness of these bar-codes for electronic data capture. Increasing the penetration of usage, the accuracy of coding, and the scannability of these bar-codes will help catalyze the electronic receiving process.

Today the implementation of the ASN is quite low. The primary reason for low implementation lies in the fact that its utility is lessened if it is not tied to automatic identification schemes which enable the transaction to utilize its capacity for receiving detail. These auto-ID schemes are not prevalent in the industry today. The ASN when used with these auto-ID schemes(UCC case coding, UPC/EAN serial pallet labels) supports true electronic store receiving and check-in. Scanning at receipt will also increase the efficiency of the store receiving process. When these two technologies are in place, automatic identification of quantity discrepancies can be implemented.

Another reason for a low rate of implementation of the ASN appears to be the current "batch" nature of EDI. While shipments are made throughout the day, EDI transactions are saved and sent in batch overnight to take advantage of off-peak communications charges. This often results in the shipment arriving prior to the ship notice which negates its value in providing pre-receipt information. This is a prime example where minimization of communication costs results in overall system inefficiencies. ECR allies will move to sending and receiving EDI transactions in a more timely manner through "fast-batch" or "real-time" EDI services.

Implementation of case and pallet cross docking by the distributor can cut logistics costs by 0.02% of sales However, the pallet cross docking represents an activity re-assignment to the supplier which can increase costs by 0.05% of wholesale sales dollars.

The investment required for the distributor to implement these logistics modes is two fold. First the system supporting system are estimated at $300,000. Second an investment in conveyor equipment is required for the case cross docking option. This equipment is estimated at $400,000.

Summary

The investment, by all parties, in Efficient Replenishment is not insignificant. The quantification of this investment is difficult since each individual company starts from a different point with regard to functionality, age, and integration of current systems. It is assumed in these estimates that the retailer has in place POS scanning equipment in all stores and an EDI communication and translation system installed as well.

Estimates for these investments are summarized in Exhibit 34. The placement of distributor versus supplier investment is made based on a "traditional" allocation of business functions. However, activity re-assignment could mean that traditional retail systems are operated by manufacturers, brokers, or wholesalers (e.g. store perpetual inventory, CAO).

Exhibit 34:   Projected Investments for Efficient Replenishment

Level 1	Efficient Replenishment Module	Distributor	Supplier
Store	POS Data Capture	$200,000	-
Replenishment	DEX/NEX UCS DSD	$1,200,000	$5,000 to $7,000 per driver
	Store-Level Perpetual Inventory	$500,000	-
	Computer Assisted Ordering	$1,000,000	
DC	Item, Price, Promotion Databases	$300,000	$300,000
Replenishment	Electronic Data Interchange	$100,000 to $200,000	$100,000 to $200,000
	Purchase Order Management	$200,000	-
	Supplier Fulfillment Systems	-	$2,000,000
Financials	Accounts Payable	$200,000	-
	Accounts Payable and Cost Application	-	$200,000
Level 2			
Store	Store SKU forecasting	$700,000	-
Replenishment			
	Dynamic CAO (incidental)	$300,000	-
	Dynamic CAO (from scratch)	$3,000,000	
Integrated	Dynamic Allocation	$500,000	$500,000
Store-DC	Electronic Receiving/Cross Docking	$300,000	-
Replenishment	Case Cross Dock Conveyor	$400,000	-

Although the investment is relatively high, the operating benefits are extremely enticing. Through the use of the Efficient Replenishment element of ECR, retailers can expect to cut warehouse inventory levels by one-half. This reduction in inventory and handling will not only affect inventory carrying costs and logistics cost, but it will also significantly reduce damage claims caused by mishandling and out-of-date codes.

Further, the efficiency administration of product and information flows is greatly increased. With the majority of transactions staying within the paper-less system (it is estimated that 90% of all order-invoice-payment transactions can be handled automatically), there will be tremendous savings in administrative effort. This frees buyers to spend more time on forecasting and category management leveraging their talents to a much greater degree. It also allows salespeople to spend less time processing forms (currently 30% of their time) and assist in more value adding activities such as category management and new product launches. These benefits are summarized in Exhibit 35.

Exhibit 35: **Projected Savings From Efficient Replenishment**

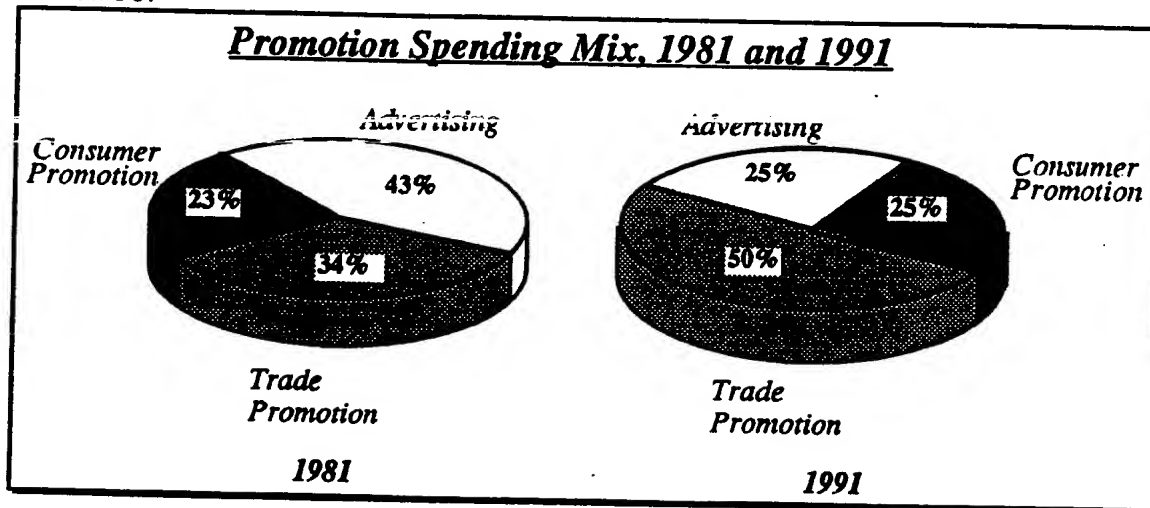|	Distributor	Supplier	Total
Stores			0.57%
Store Ordering	0.29%		
Item/Price Maintenance	0.03%		
Receiving/Backroom	0.25%		
Buying/Selling			0.73%
Item/Price Maintenance	0.03%		
Promotion Maintenance	0.04%	0.15%	
Order Preparation	0.06%	0.15%	
Order Validation		0.10%	
Invoice/Receipt PO Matching	0.12%		
Cash Application		0.10%	
EDI Costs	-0.01%	-0.01%	
Logistics			1.50%
Damages		0.30%	
Receiving	0.01%		
Pallet/Case Cross Dock	0.14%		
Transportation	0.30%	0.15%	
Warehouse	0.30%	0.30%	
TOTAL	1.56%	1.24%	2.80%

EFFICIENT PROMOTION STRATEGIES

Promotion practices in the grocery industry have become the most hotly-debated, and the most sensitive, issue between suppliers, brokers, and distributors. Strong opinions have been voiced by all sides, and there is no unanimity of opinion even among those on the same side. The disagreement centers not on the fact that promotion practices, and particularly trade promotion, add additional costs for suppliers, brokers, and distributors, but rather on how these costs can be reduced without losing the purchase-incentive for the consumer or eroding the competitive position of the distributor.

There are three major promotional activities in the grocery industry: consumer advertising, consumer promotion and trade promotion. Over the last decade the supply industry's promotion spending has shifted away from advertising and heavily into trade promotion while consumer promotion has remained relatively steady.

Exhibit 36:

Promotion Spending Mix, 1981 and 1991

Consumer Promotion — Advertising 43% — 23% — 34% — Trade Promotion — **1981**

Advertising 25% — Consumer Promotion — 25% — 50% — Trade Promotion — **1991**

Suppliers admit that this shift results from demands for short-term, quarter by quarter, sales growth and market-share gains in a slow-growth market. It is an established fact that consumers will respond more quickly to a price promotion than to an increase in advertising spending. Many suppliers are concerned that this short-term focus is leading to an erosion of the value of their brand franchises as consumers become more price conscious and less brand loyal.

Consumer advertising is not a practice that adds cost to the distributor, nor does it degrade the overall efficiency of the total system except for the money spent on unsuccessful new product introductions, discussed in the next section. The major areas of inefficiency are the result of trade promotion practices and, to a lesser extent, in consumer promotion practices.

Trade Promotion

The origins of the pricing strategy of maintaining high list prices and then frequently discounting off these list prices is generally attributed to the price controls imposed during the Nixon administration. Suppliers decided to adopt this strategy to avoid ever finding themselves unable to raise prices in an inflationary environment.

While this philosophy may have had some validity in the inflationary '70s, it clearly has little to do with the increase in trade promotion spending in the low inflation environment of the last decade. The reality is perhaps closer to the metaphor used by several suppliers in our interviews-trade promotion is like a drug, effective at boosting sales at first in small amounts but gradually, as competitors match offers, the amount has to be continually increased to meet quarterly shipping goals. Like a drug, trade promotion is hard to break as the system becomes dependent upon it, even despite the bad side effects that it produces. The withdrawal is painful, requiring great strength and a strong sense of the ultimate benefits to persevere to success.

Initially trade promotion was relatively simple, focusing on off-invoice allowances for shipments made in a given time period. Not surprisingly, distributors recognized that by buying more than they sold during the deal period they could make additional profit by selling the excess once prices returned to list or regular levels after the deal period. This practice, known as investment buying or, more commonly, as forward buying enabled these distributors to gain an advantage over other competitors who weren't forward buying.

Forward buying appears to have an excellent return on investment for the distributor, with annualized rates of return, after deducting additional handling and warehousing expenses, typically exceeding 50% on many deals. Distributors with well-managed forward buying programs are typically able to increase their gross margin by 3 or more percentage points.

The regional pattern of trade promotion has also led to the practice of diverting. Goods bought on deal in one region may be resold at a profit in another region where no deal is running. This provides additional profit for both the buyer and seller and for a middleman, if involved. The diverter market has become an efficient secondary market in which information is communicated electronically, providing ready access for buyers and sellers to prevailing offers and bids.

Forward buying and diverting have become so prevalent that distributors are now forced to do it if they are to be competitive. For example, if 80% of an item's volume in a market is being bought on deal, any distributor who buys less than 80% on deal is at a

competitive disadvantage as his average purchase cost will be above the market average. Conversely, the competitive advantage of a distributor who used to buy 80% of his needs on deal has been eroded, and he must now buy 85%, 90% or more on deal to have any advantage. However, the returns on investment diminish at these levels as inventory is held longer and higher storage and financing costs are incurred.

The net result is that the competitive advantage distributors gain by forward buying and diverting is much less than it used to be. However, the additional costs incurred by the entire grocery supply chain remain.

The additional costs in the supply chain created by suppliers' trade promotion practices affect almost every area of the suppliers' and distributors' cost structure. This is occurring for two reasons-- the increasing complexity of trade promotions and the inventory surges created by producing and shipping large amounts of product in short periods. These are discussed separately below.

Complexity of Trade Promotions

The primary goal of suppliers' trade promotion spending is to incentivize consumer purchase. As forward buying became more and more widespread, suppliers realized that a growing proportion of their trade promotion spending was not getting passed through to the consumer but instead was subsidizing the distributor's business. As grocery distribution is a highly competitive business, distributors were unable to keep this additional margin as profit for themselves, but instead they were able to offset other cost increases without increasing the price to their customers.

To try to ensure that more of their trade promotion funds went through to the consumer, suppliers began to create more and more complex schemes. These included performance requirements, bill-back arrangements, and market development funds which supplemented the simpler off-invoice arrangements. Commonly, several different deals might apply to the same purchase order, making it increasingly difficult for distributors to determine which deals offered the best terms.

The administration of deals has become a burden for distributors, suppliers, and brokers. A chain retailer may have 7,000-8,000 deals on file at any time, leading to numerous misunderstandings over deal terms, the cause of 78% of invoice deductions according to a Joint Industry Task Force study on invoice deductions. The same study showed that buyers and salespeople spent 10%-15% of each appointment resolving deductions, and industry estimates are that buyers spend an average of two hours per day resolving pricing discrepancies.

Another tactic employed by suppliers to ensure that their promotion funds reach the consumer is special packaging. These include bonus packs or packs with coupons on the outside or on the inside, all of which create additional costs in packaging, warehousing and administration.

Production and Shipping Surges

With 80% or more of many items being bought on deal, the shipping pattern from supplier to distributor bears little resemblance to the pattern of consumer purchases. While the difference in rate of consumer offtake between deal and non-deal weeks may be a factor of two or three (depending on the incentive), the difference in a supplier's shipments between a deal period and a regular price period may be a factor of 10 or 20 or even more.

Exhibit 37:   **Effect of Promotional Activity on Weekly Sales**
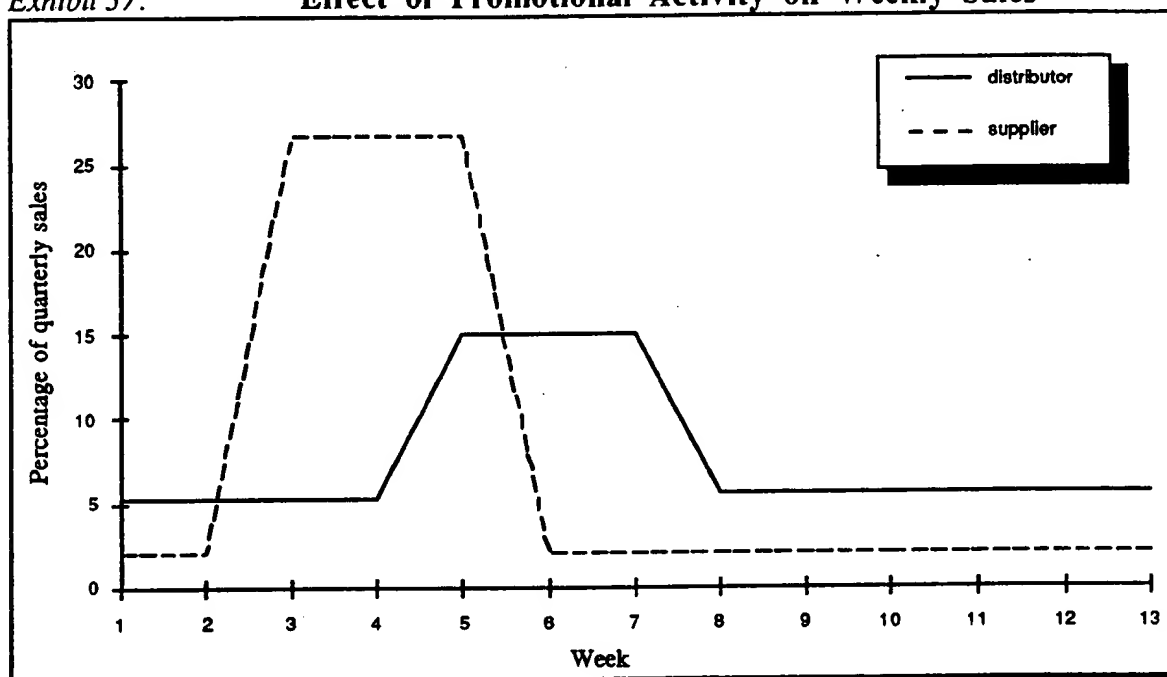
Furthermore, orders received by the supplier or broker are also influenced by additional factors such as rounding up or down to truckload quantities, diverting opportunities, etc., which further compound the difficulties of forecasting future orders.

This high variability and unpredictability of demand results in significant cost increases in suppliers' operations. Trade estimates of this impact are shown in Exhibit 38.

Exhibit 38:

COST AREAS IMPACTED BY DEMAND VARIABILITY

Area	Causes	Excess Cost
Raw Materials	Unplanned purchases, excess inventories, excess inbound freight	0.5 to 2.0%
Manufacturing expense	Excess capacity, inefficient utilization, overtime	4.0 to 8.0%
Warehousing	Excess capacity, contract warehousing	5.0 to 9.0%
Transportation	Inefficient scheduling, premium rates	3.0 to 6.0%

Source: Trade estimates

Possible Solutions

As noted earlier, trade promotion practices are a highly sensitive issue between suppliers, brokers, and distributors. Since suppliers set the stage for the problem the burden of solving it must also rest with the suppliers.

Current trade promotion practices evolved over many years and it is unrealistic to expect that they can be completely eliminated overnight without causing extreme difficulty for many distributors. Since Efficient Consumer Response is fundamentally a strategy for suppliers, brokers, and distributors to work together jointly to bring greater value to the grocery consumer, a unilaterally imposed solution is quite contrary to the guiding principles of ECR. A set of recommended principles for trade promotion practices that is consistent with ECR is set out in Exhibit 39.

Recommended ECR Trade Promotion Principles

1. **Suppliers should offer alternatives to their distributor customers.**

   Distributors should be able to choose between continuing to buy under current practices or an alternative offered by each supplier. The most promising alternative is a fixed net price arrangement, sometimes referred to as a "continuous deal", which reflects both the average weighted value of promotional spending and supplier savings which are realized from smoothing the product flow.

2. **Suppliers should simplify promotional deals.**

   One major supplier found that it had 112 different variables in its promotion offerings. Through analysis it found it could reduce the number of variables to 12, greatly simplifying the administrative burden internally and for customers.

3. **Suppliers must ensure distributor's deal files are accurate.**

   Suppliers and brokers should use the UCS transactions to promptly communicate accurate, up-to-date information on promotion announcements and changes. Sales personnel should be held accountable for invoicing errors resulting from a failure to meet these goals.

Consumer Promotion

Consumer promotion is an important tool for motivating purchase. Couponing is the most prevalent form of promotion, but it is highly paper-intensive and technology is now providing ways to make this more efficient.

Over 280 billion coupons are distributed annually in the U.S.A. To put this in perspective, they would cover an area of 2,500 square miles, over twice the area of Rhode Island. Only 2.6% of these coupons are redeemed, with an average value of $0.54 each.

The coupon system is costly to administer in addition to its questionable environmental value. Although redemption rates and costs vary depending on the coupon delivery system, it is estimated that only 45% to 50% of the total cost of coupon programs actually reaches the consumer. The balance is absorbed by coupon printing, distribution, redemption and administration expenses.

Two, more efficient, alternatives are proposed under ECR. The first, scan-validated coupon redemption, is currently being tested in a pilot co-sponsored by the FMI and GMA. Under this approach suppliers reimburse distributors directly based on POS data, eliminating much of the costly redemption processing and validation expense. It is projected this system could reduce the distributor's expense in half, with additional savings in suppliers' processing costs.

The second alternative eliminates paper coupons completely. Under this approach items carrying a supplier rebate would be shelf marked "Supplier rebate: 50¢ taken off at register." The price look-up system would print both the regular price and the rebate on the tape, and the supplier would be invoiced electronically based on sales. This approach would eliminate the printing and distribution expenses as well as the redemption expenses, reducing the total cost to the grocery industry of coupon-type promotions by 25-30%. This approach (but without supplier participation) is already used by some leading distributors for in-store promotions, and is a common practice in the general merchandise retailing sector for both temporary and permanent markdowns.

Both approaches are more efficient because the incentives they offer reach the ultimate consumer without waste.

Another feature of consumer promotions is special displays. Traditionally these have been built in-store by the suppliers' or brokers' sales force or by the distributor's store personnel. Several suppliers are now using Pre-Assembled Displays which are assembled on pallets at their warehouse and either shipped directly to the stores or are cross-docked through the distributor's warehouse. Savings of $0.25 per case for in-store receiving and display-building labor have been reported, plus an additional $0.11 per case savings resulting from full-pallet cross-dock handling in the distributor's warehouse.

EFFICIENT PRODUCT INTRODUCTIONS

The development of new products and services is one of the most important value-creating processes in every industry. The grocery industry is no exception. New products and services create interest, excitement and new business opportunities by providing consumers with better, more convenient or lower priced ways to fulfill their needs. The success of the grocery industry in creating new products is evident in the fact that one-third of consumer sales are products that did not exist ten years ago.

While distributors and suppliers agree on the importance of developing and introducing new products, many voice concerns that inefficiencies have crept into the new product creation and introduction process in the grocery industry. They believe that distributors and suppliers working together as allies can both reduce the costs of product development and introduction and, more importantly, develop more and better products than are being produced today. In this section we discuss these concerns, review changing practices in other industries and assess the potential benefits possible through Efficient Product Introduction.

Industry Concerns

As the number of new product introductions has sky-rocketed in the last ten years, reaching 15,400 in 1991 (Exhibit 40), distributors have been under increasing pressure from suppliers to accept new products for distribution.

Exhibit 40:

New Product Introductions   1975 - 1991

The number of new product introductions exploded in the 1980's

Source: Gormans New Product News
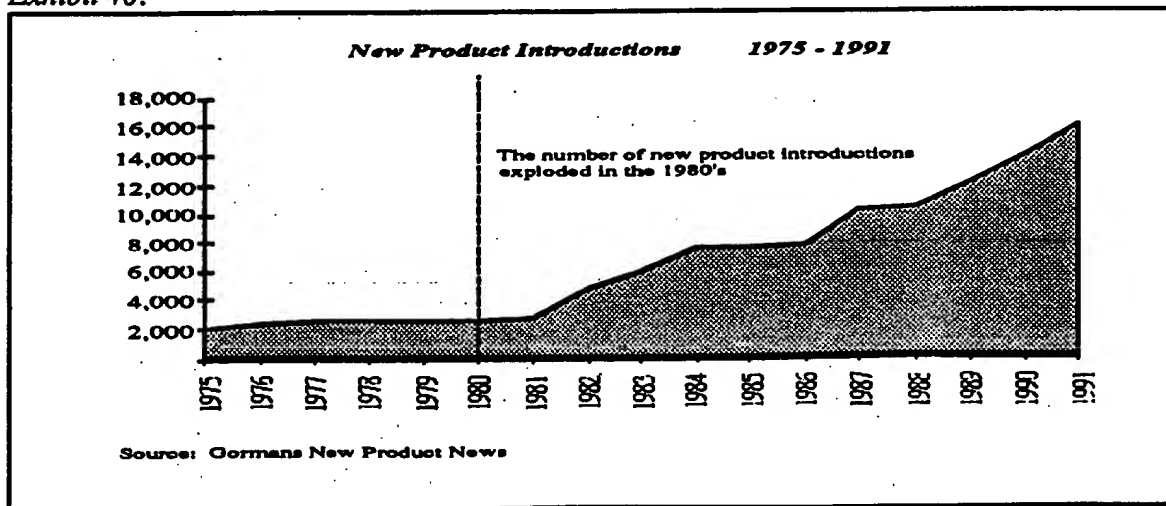
Distributors are frustrated that too many of these new products are marginal, me-too products that add little or nothing to total category sales. Less than 1% of new products introduced achieve more than $15 million in total annual sales. Accepting such products increases costs as the number of items that the warehouse must stock increases requiring additional slots and inventory financing. These items, therefore, result in a decrease in efficiency to the total system.

Distributors welcome genuinely new product concepts. However, these account for only 13% of all introductions. Two-thirds of all new product introductions are line extensions - additional flavors or sizes to an existing line - that the supplier hopes will gain share for the total line but which rarely create significant incremental category sales for the distributor.

To counter the pressure from suppliers to accept new products, many distributors have negotiated slotting allowances and other fees. To the extent that such fees discourage the introduction of products of marginal utility they increase the efficiency of the system. However, if such fees are holding back the introduction of innovative new products, or if the payment of the fee persuades a distributor to accept an item he would otherwise have rejected, the system becomes less efficient. No data is available to develop any valid conclusions on whether, on an overall basis, these payments are increasing or decreasing the efficiency of the system.

The suppliers' principal concern is with the high cost of introducing new products, estimated at $15-$20 million per event. They believe that these costs, coupled with high failure rates, have forced them to concentrate on lower risk products such as line extensions or responses to competitors' introductions. Line extensions have also been favored as a way to increase share of market, an important management performance measure in most supplier organizations.

Suppliers' estimates of the excess cost to the grocery system in the product development and introduction process range as high as 4% of net sales. These costs include

      — All development and introduction costs associated with failed products, including products canceled before introduction as well as products withdrawn after launching.

– Excess costs incurred in launching new successful products, principally excess manufacturing, warehousing and distribution costs due to an initial massive inventory buildup needed for introductory deals and special offers e.g. free goods.

Clearly a significant cost reduction opportunity exists and, as both distributors and suppliers and brokers are dissatisfied with the current process, the timing is right to explore alternative approaches.

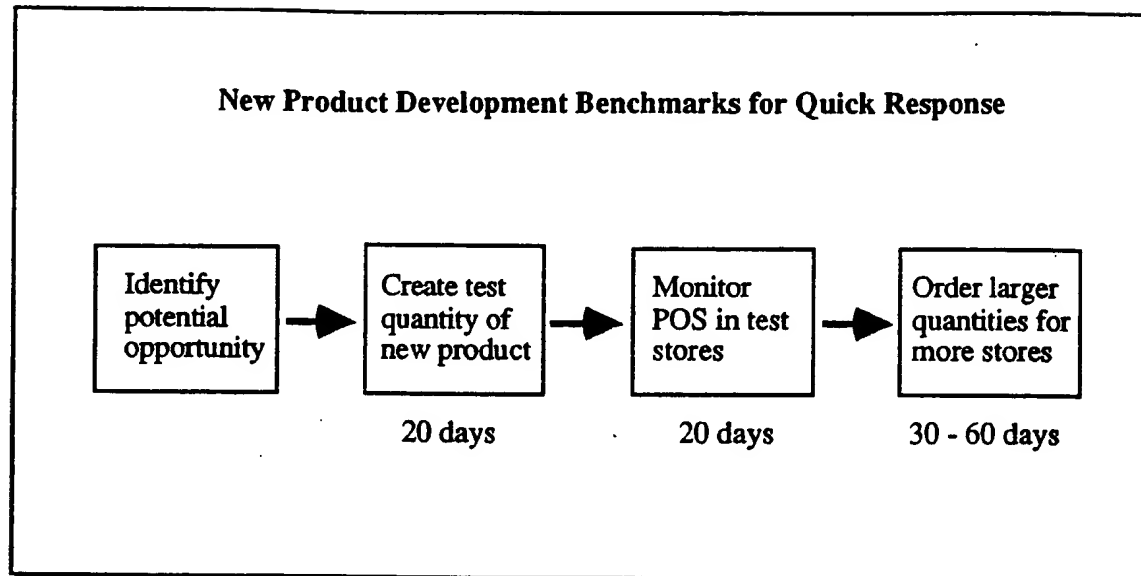## Changing Product Development Practices in Other Industries

In recent years product development practices have changed profoundly in manufacturing companies who have adopted Total Quality Management and in general-merchandise vendors who have adopted a Quick Response strategy. There are three common elements to the new processes adopted by these companies: customer involvement, teamwork, and continuous, rather than episodic, development.

Quick Response takes its name from the goal of responding more effectively and more quickly to consumers changing fashion tastes. As the market for general merchandise products such as apparel, footwear, home fashions, cosmetics, etc. became more fragmented and more volatile the traditional, sequential product development process became less and less effective. This traditional process is organized functionally with each function doing its task before handing over to the next function. While this minimizes cost, it also creates a long and inflexible process which results in high losses as excess product is marked down to be sold at or below full cost.

These markdowns occur on products produced by the vendor which the retailer didn't buy and on products bought by the retailer which the consumer didn't buy. Both problems are caused by inaccuracies in forecasting what the customer will buy many months in the future.

Quick Response companies have made major changes to their product development processes. Their new process is based on continuously monitoring POS activity to detect trends and continuously testing new product concepts in a limited number of stores.

New Product Development Benchmarks for Quick Response

Identify potential opportunity	→	Create test quantity of new product	→	Monitor POS in test stores	→	Order larger quantities for more stores
		20 days		20 days		30 - 60 days

Due to the importance of speed, these companies have created cross-functional development teams containing all the functional skills required e.g.. design, development, costing, purchasing, production engineering, etc. Working concurrently on a new concept, the team members can cut weeks out of the development cycle.

Quick Response companies have also involved their retail customers in the product development process to an unprecedented extent. Whereas previously customers had little or no input into the process until the salesperson showed them the line, today retailer and vendor are regularly discussing new product ideas and opportunities. This early input into the process is resulting in less effort being wasted on products the retailer doesn't want and provides the vendor with ideas for products that he was not aware of.

Efficient Product Introductions

In years past, the owner of a grocery store developed a strong relationship with his customers. Through frequent contact he came to know his customers and their families tastes, likes, habits, lifestyles, and changing needs. When he bought products he bought with his customers needs in mind, and he evaluated new product offerings based on his judgment of how his customers would benefit from the new item.

Mass marketing radically changed the relationship between retailer and customer. Suppliers communicated directly with customers through advertising and promotion, creating demand for products and reducing the retailers role in selecting products. The

consolidation of the retail segment with the growth of chains and expansion of store sizes also reduced the contact between the store owner and his customers, making it much more difficult to objectively evaluate new products against the needs of the store's customers.
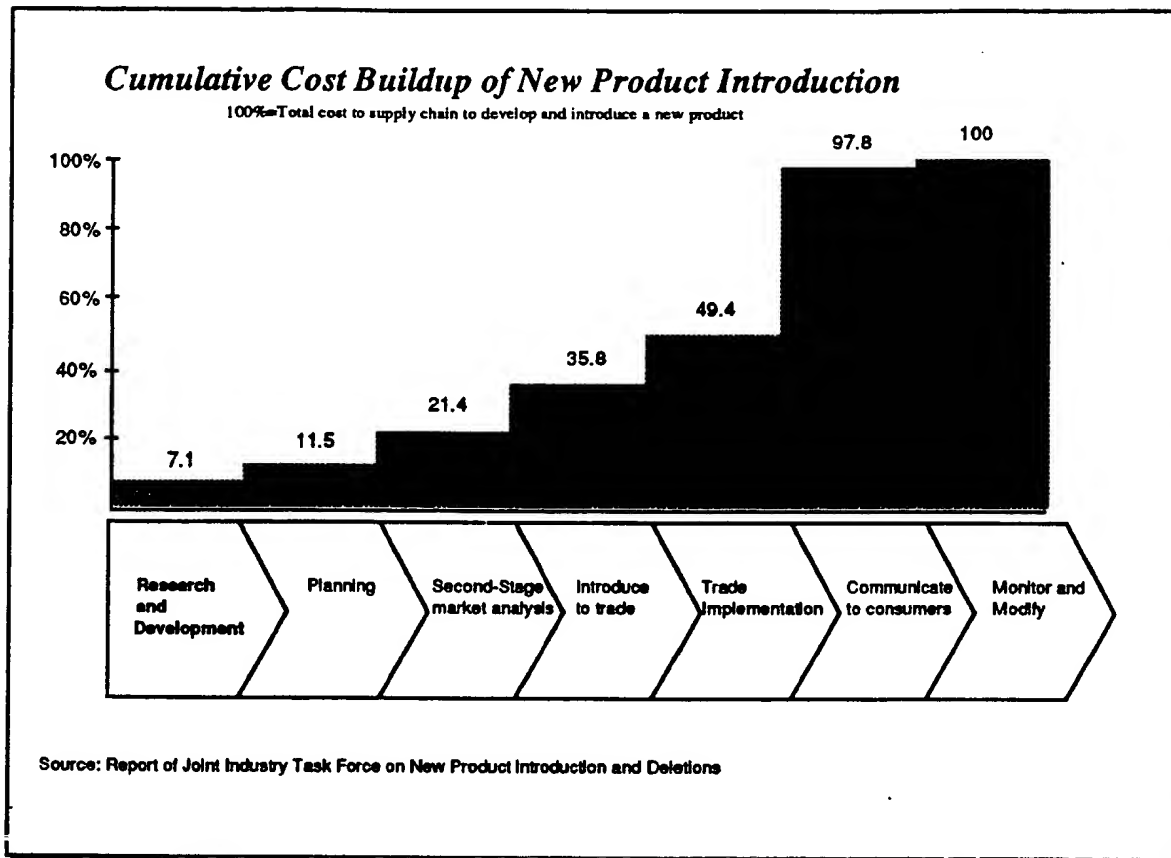
Several leading retailers are today planning or implementing programs that will help them to restore much of the link that existed between retailer and consumer. These programs are now becoming feasible as computing technology developments allow large quantities of data to be stored and analyzed at low cost.

One of the most exciting developments is the use of consumer cards that identify the consumer who is making a POS transaction. Such cards range from bar-coded check-cashing cards to savings club or frequent shopper membership cards which entitle the holder to special in-store offers or to other awards. By collecting household demographic information from surveys these retailers are building databases that are providing previously unobtainable insights into their customers and their buying patterns.

These customer database tools are particularly effective when used in a category management based organization. The category manager can perform analyses to understand which consumer responds to which promotions, who is brand loyal and who is not, who is buying which brands or items, etc. In turn, this information will help him to make more informed promotion, pricing, space management, introduction and deletion decisions.
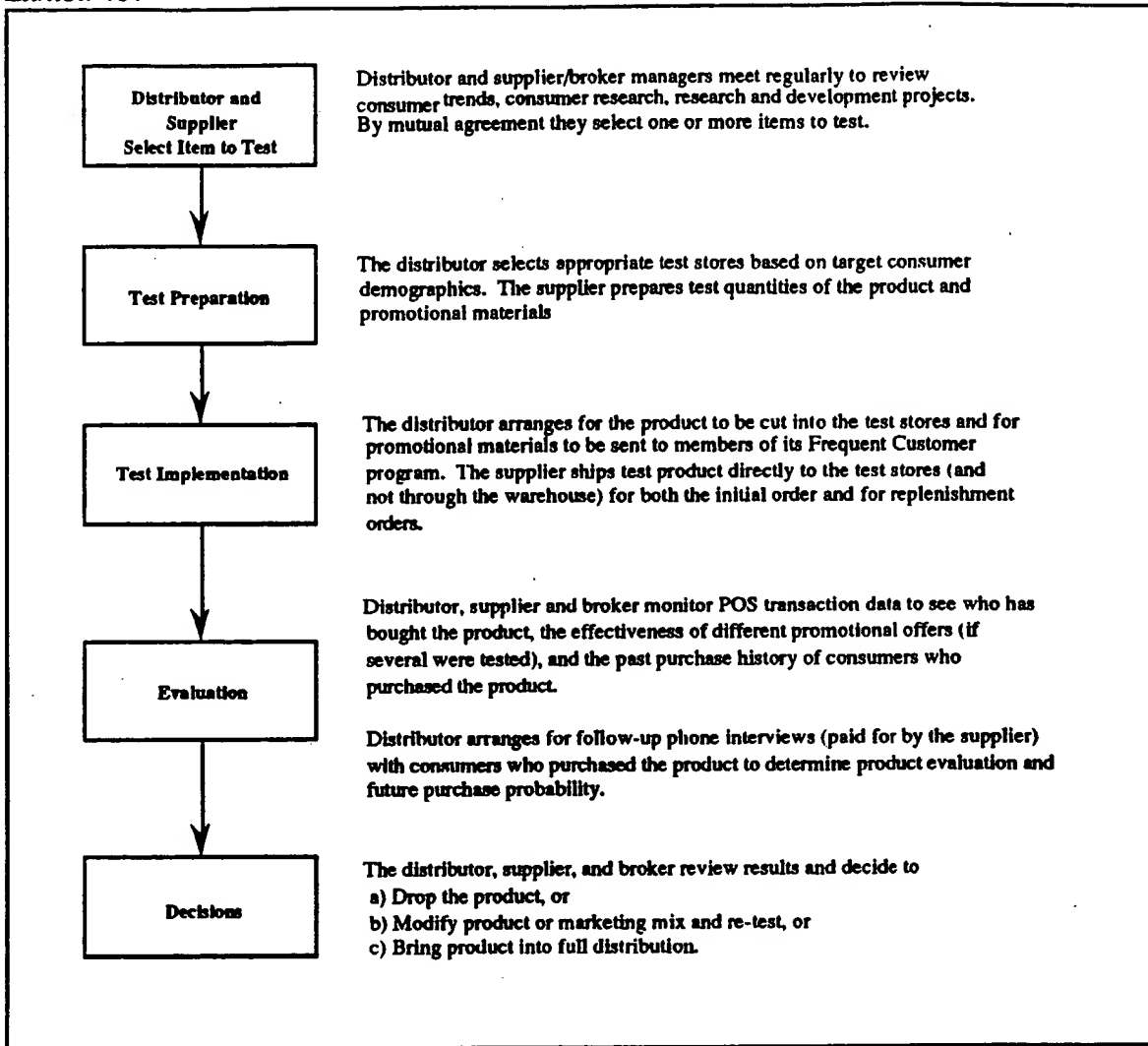
These developments are expected to have major ramifications on the way new products are introduced in the grocery industry. A 1990 study conducted by Deloitte and Touche for a Joint Industry Task Force on New Product Introductions and Deletions showed that 21% of the cost of introducing a new product was incurred prior to introducing a new product to the trade and 49% of the cost was incurred prior to introducing it to the consumer. A very substantial investment has therefore already been made before the distributor and the consumer have had an opportunity to evaluate the product in a normal (as distinct from a simulated or test) market setting.

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Exhibit 42:

Cumulative Cost Buildup of New Product Introduction

100%=Total cost to supply chain to develop and introduce a new product

(Chart values: Research and Development 7.1; Planning 11.5; Second-Stage market analysis 21.4; Introduce to trade 35.8; Trade Implementation 49.4; Communicate to consumers 97.8; Monitor and Modify 100)

Stages: Research and Development | Planning | Second-Stage market analysis | Introduce to trade | Trade Implementation | Communicate to consumers | Monitor and Modify

Source: Report of Joint Industry Task Force on New Product Introduction and Deletions

The Efficient Product Introduction strategy provides the opportunity for distributor and consumer involvement much earlier in the process. As with the three other Efficient Consumer Response strategies, a prerequisite to gain much of the benefits is that distributor and supplier/broker are working together as allies with a mutual commitment to focus on what the two parties can do together to provide greater consumer value. The joint emphasis shifts to a continual, real-time testing process of promising concepts and product improvements. More products will get tested but at a much lower cost per test, enabling suppliers to put more resources into probable winners and less into weaker products. A typical joint project is shown in Exhibit 43.

Distributor and Supplier Select Item to Test	Distributor and supplier/broker managers meet regularly to review consumer trends, consumer research, research and development projects. By mutual agreement they select one or more items to test.
Test Preparation	The distributor selects appropriate test stores based on target consumer demographics. The supplier prepares test quantities of the product and promotional materials
Test Implementation	The distributor arranges for the product to be cut into the test stores and for promotional materials to be sent to members of its Frequent Customer program. The supplier ships test product directly to the test stores (and not through the warehouse) for both the initial order and for replenishment orders.
Evaluation	Distributor, supplier and broker monitor POS transaction data to see who has bought the product, the effectiveness of different promotional offers (if several were tested), and the past purchase history of consumers who purchased the product.
	Distributor arranges for follow-up phone interviews (paid for by the supplier) with consumers who purchased the product to determine product evaluation and future purchase probability.
Decisions	The distributor, supplier, and broker review results and decide to a) Drop the product, or b) Modify product or marketing mix and re-test, or c) Bring product into full distribution.

This development process, which would be going on almost continuously, will result in major benefits to distributors, suppliers, and brokers. Distributors will have a much greater capability to evaluate new product offerings and to objectively determine the product's potential sales in its markets and to its customers. Direct cost savings to distributors will be low (0.01-0.02% of sales) because suppliers bear most of the costs of introducing new products and of deleting failures. Distributors will realize inventory productivity improvements as less slow-turning items will be introduced, but the most important improvement will be in sales increases as distributors can focus their new product acceptances on products that will increase total category sales rather than take a share of existing sales.

Distributors may find the greatest benefit of this process in their own private label development programs. By testing products and consumer satisfaction on a continuous

basis they have the opportunity to develop products that are best suited to the needs of their customers in their stores.

Suppliers will benefit from significant reductions in product development and introduction costs. Key benefits will be

- Reducing the failure rate of products brought to full consumer introduction

- Optimizing the marketing strategy during the test period in a realistic market environment

- Identifying new opportunities for profitable products through closer customer involvement.

The financial benefits to suppliers will vary widely depending on the category and on the suppliers level of spending on new product development. For some dry grocery suppliers the potential cost benefits are as high as 2-3% of sales, while for others they will be below 1% of sales. Overall it is estimated that 0.9% of sales in dry grocery is a conservative estimate of the total cost saving benefit achieved by grocery suppliers and distributors.

The consumer is the final, but by no means the least, beneficiary of the Efficient Product Introduction Strategy. Consumers will see more genuinely new and innovative products and less me-too products of marginal benefit.

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ORGANIZATION STRUCTURES AND MEASUREMENT SYSTEMS TO SUPPORT ECR

No factor is more important in influencing the behavior of individuals and organizations than the system used to measure and reward their performance. One of the most important top management tasks is ensuring that their organization's system of measurement and accountability is fully congruent with their objectives for the business. What gets measured gets done and, conversely, whatever is not measured does not get done.

Any organization that attempts to implement ECR without changing its' organization and measurement systems faces significant obstacles and will fail to achieve much of the benefit. In more than a few companies, based on experience with Quick Response in the general merchandise sector, there will be an initial burst of activity and enthusiasm which will fade away as people in the organization realize their performance will still be evaluated on the old measurements.

Performance measurement in the grocery supply chain follows the general practices developed in the U.S. manufacturing and retailing industries over the last fifty years. The underlying model is the profit maximization model, i.e. Profit = Revenues - Purchased Materials-Operating Expenses, which is the foundation of functional management structures. The model implies that if top management organizes the firm to assign clear responsibilities for revenues, purchased materials and operating expenses then the organizations profit goals will be achieved if the responsible departments maximize revenues (sales department), minimize purchased materials costs (purchasing department) and minimize operating expenses (manufacturing, distribution, administration departments). This logically leads to the following goals:

Function	Goal
Sales	Maximize revenues per time period (month, quarter, year etc.)
Purchasing, Buying	Maximize gross margin percentage
Manufacturing, warehousing, transportation, store operations	Minimize unit cost

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The primary measurements used are based on the income statement, not the balance sheet. Fixed assets are charged to the income statement through depreciation allowances. Since this is usually a fixed charge for each accounting period the department manager will try to maximize the number of units processed per period to reduce the fixed cost charged to each unit.

Inventories are a more complex problem because the measurement system encourages both the sales department and the manufacturing department to favor high inventories. The sales department likes inventory to ensure that sales are not lost to out-of-stock problems, while the manufacturing department likes inventory because it can maximize efficiency with long runs and minimize the disruptive effect of quality or manufacturing problems with sufficient buffer inventories. Since accountability for return on assets rests at the top of the organization the responsibility for inventory is often unclear in the functionally managed company.

This functional organization and measurement system was extremely effective in improving productivity, efficiency and profits for many decades. During this period of mass production, economic growth was strong, product variety was low and product life-cycles were long.

In the 1970's and 80's the economic environment changed dramatically. Economic growth slowed, and product variety increased as marketers sought growth through market segmentation and product differentiation. The goals of the marketing and operating departments came increasingly into conflict as marketing's needs for smaller lots of specialized items was opposed to manufacturing and distribution's desire for larger lots of fewer standardized items. The organization and measurement system that had worked well for so long started to break down.

Measurement Systems in the Grocery Industry

Grocery suppliers and distributors predominantly follow the functional management and measurement system described in the previous section (Exhibit 44). As with other sectors of U.S. industry the effectiveness of this system has declined as the complexity of the business has increased.

The major weakness of the current system is that it operates on the implicit assumption that if each function or department maximizes its efficiency then the efficiency of the firm and the total system will be maximized. In many cases this is not true as the following examples illustrate.

Truck Loading - The transportation department's objective is to minimize cost per ton mile. This may lead to truck-loading practices that allow damages and that add time and cost to the unloading process.

Buying - The buyer's objective is to maximize gross margin. This leads to greater emphasis being placed on price in comparing vendors and less on other factors that can significantly affect profitability, e.g. inventory turnover, delivery reliability, invoice accuracy, handling costs, etc. The system provides no easy way for a buyer to pay a premium for additional services from a supplier that would lead to larger savings in the warehouse or the store e.g. Pre-Assembled Displays.

Case Sizes - For many of the slower moving items that are currently distributed in full cases, smaller cases would increase the overall system's return on assets as less inventory would be held at the retail store even though packaging, selection and stocking costs would increase. However, since no one's performance is being measured on supply chain return on assets, but the cost increases would affect several departments' performance measurements, this change has few, if any, supporters.

Organizational Structure for Efficient Consumer Response

The cost-performance breakthroughs that can be achieved through Efficient Consumer Response require co-operation across functional boundaries within the organization and across organizational boundaries. Many of the changes involve trade-offs which may increase costs in one department to achieve more than offsetting savings in another.

Effective implementation of ECR must therefore be accompanied by changes in the organization structure and the measurement systems that are congruent with ECR's goals of minimizing time, cost and inventories in the supply chain. This leads to an organizational structure that encompasses all activities that must be performed to satisfy the supply chain's customer, i.e. a customer-based organizational structure (Exhibit 45).

Based on the experience of other industries the most effective way to accomplish this is a team-based organization that includes all of the required functional skills. Effective co-ordination between teams is necessary at the functional level because many teams will share the same resources e.g. manufacturing plants, warehouses, stores.
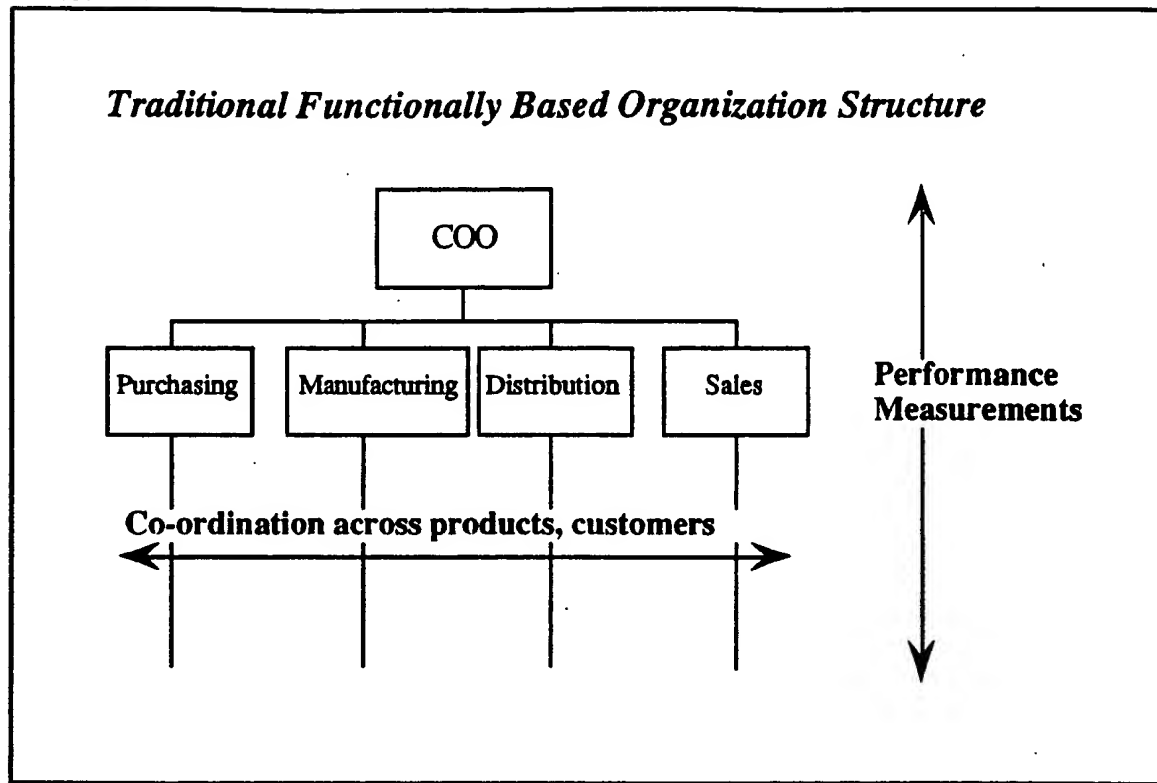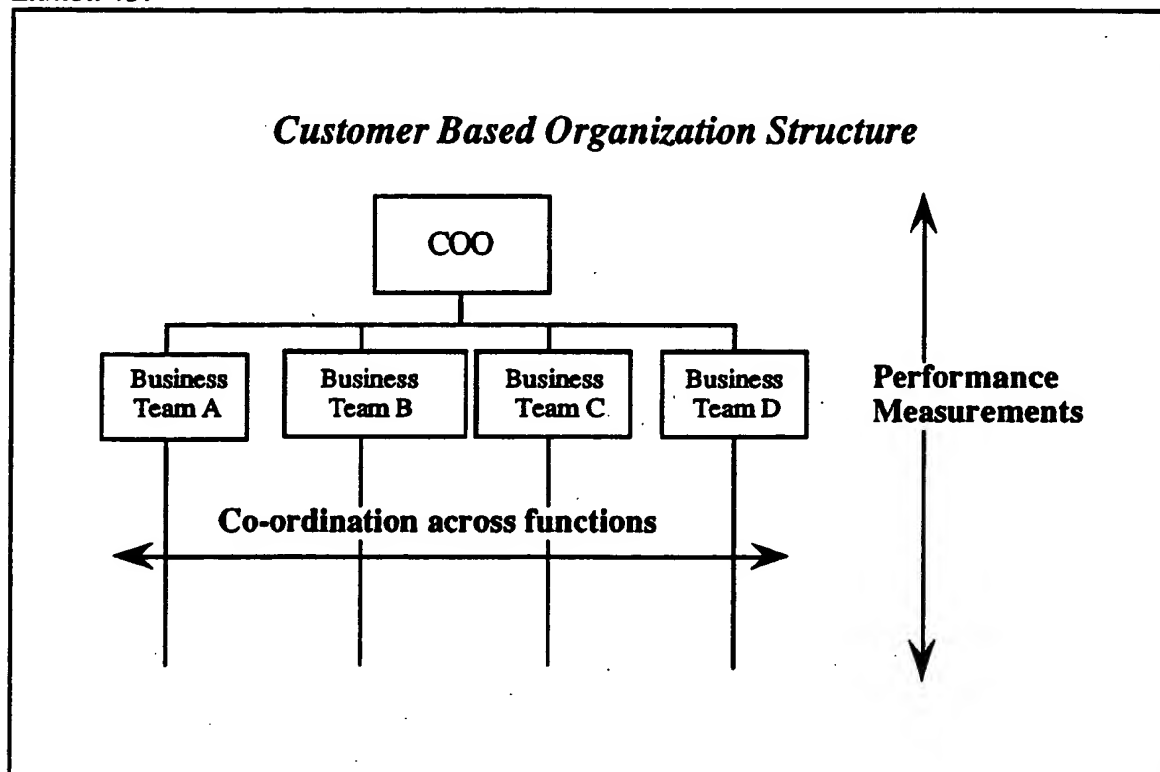
Exhibit 44:

Traditional Functionally Based Organization Structure

COO

| Purchasing | Manufacturing | Distribution | Sales |

Co-ordination across products, customers

Performance Measurements

Exhibit 45:

Customer Based Organization Structure

COO

| Business Team A | Business Team B | Business Team C | Business Team D |

Co-ordination across functions

Performance Measurements

A grocery distributor adopting a customer-based structure will probably structure its organization into Business Teams for Dry Grocery, Frozen Food, Meat, Produce, HBC, etc. Each team would have total responsibility for its business as measured by return on assets employed. Each team would be led by a group covering all of the key functional skills, e.g. buying, merchandising, warehousing, traffic and for a chain retailer, stores.

A supplier adopting a customer-based structure will probably structure along category lines and within categories by customers. Again, all business functions (i.e. marketing, sales, manufacturing, purchasing, distribution) would be on the team and the team would be responsible for the total profitability of its business.

This structure eliminates many of the obstacles to implementation of ECR. A meeting between a distributor's business team and a supplier's business team has all of the expertise necessary to comprehensively analyze the total supply chain and brainstorm ways to re-engineer the supply chain activities to reduce time, cost and inventories.

Measurements Systems for Efficient Consumer Response

Current performance measurement systems are financially-based and are designed to support a functionally-based organization. These systems do not provide the information necessary to manage a customer-based organization and therefore new measurement systems must be developed and implemented to support the new organization structure.

While current performance measurement systems are financially based, many non-financial measures are used to manage on a day-by-day basis. These measurements are vitally important management tools because financial results are typically only available several weeks after the end of an accounting period by which time it is too late to take any corrective action.

Most of these non-financial measurements are direct labor based because direct labor was typically the largest cost item in manufacturing. Examples include labor hours per unit produced, selection labors hours per case, store labor hours per week, etc. Overhead activities are rarely measured with similar diligence and are typically allocated to products based on direct labor hours. This leads to a common but erroneous impression that reducing direct labor reduces overhead which is rarely, if ever, the case.

Just as with the financial measures, new non-financial measures are also required to ensure Efficient Consumer Response practices are fully supported by the key organizational performance measures. These are discussed in the following section.

Non-Financial Measurements

There are four categories of non-financial measurements that will support an organization's implementation of ECR. These are customer satisfaction, cycle times, yield and reliability.

Customer Satisfaction

Increasing customer satisfaction is the primary objective of ECR, and no implementation can be complete without regular measurement of customer satisfaction.

Distributors with frequent shopper clubs have an excellent starting point as they already have a database containing information such as telephone numbers, household demographics, purchase volume, etc. Using this resource they can conduct regular telephone surveys at low cost and with the ability to track individual ratings over time.

Distributors who do not have a frequent shopper club can conduct exit surveys in their stores. Both types of surveys will provide valuable information on assortments, convenience, staffing, layout, etc. that can identify improvement opportunities at the store level and in merchandising.

Suppliers should also conduct regular customer satisfaction surveys of both distributors and consumers. Feedback from these surveys and resulting action plans should be shared with distributor customers in regular meetings.

Cycle Times

One of the most important changes in management thinking in the 1980's was the recognition that shortening cycle times was a powerful way to drive performance improvement. Long cycle times typically cover up many problems due to quality, errors, re-work, breakdowns, etc. By analyzing the time that product or information spends at each step of a process, opportunities to cut both time and cost become apparent. For example, the payment cycle is significantly lengthened and processing costs increased when purchase order, invoice and receiving documents do not match.

Cycle times can be determined for all business processes at the overall level and for individual process steps. For example, the shelf replenishment cycle can be decomposed as shown in Exhibit 46. Goals for cycle time reduction can be determined and are much more actionable and direct than financial goals.

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Exhibit 46:　　　　**Example Format for Cycle Reduction Analysis**

Shelf Replenishment Cycle		
	Current (Days)	Goal (Days)
1. Customer purchase to order generation	—	—
2. Order generation to receipt at warehouse	—	—
3. Receipt at warehouse to selection	—	—
4. Selection to ship	—	—
5. Ship to arrive at store	—	—
6. Arrive at store to received	—	—
7. Received to stock shelf	—	—
TOTAL CYCLE TIME		

Yield

Yield is the measure of what comes out of a process versus what went in. Although predominantly used in manufacturing operations it also has applicability to many distribution and administrative operations e.g. what proportion of goods that went into the warehouse came out undamaged, what proportion of meat that went into a store was sold at full price, what proportion of orders were entered correctly.

Reliability

A significant component of the total supply chain inventory is the safety stocks which are held at the retail, warehouse and supplier level. These inventories act as a buffer to provide for variations in demand and for variations in re-order lead time. These variations are the result of unreliable processes and the reduction of these safety stocks therefore depends upon improving the reliability of every process.

On the demand side the problem is unreliable forecasts, usually due to unreliable input data and unreliable forecasting methodologies. Improved POS data accuracy, improved tools to analyze seasonal and daily variations in demand and improved tools to analyze and predict the impact of promotions are key steps to producing the reliable forecasts at the store and SKU level which will drive the whole replenishment system. The sharing of demand forecasts with suppliers will enable suppliers to reduce the high levels of safety stocks they now carry.
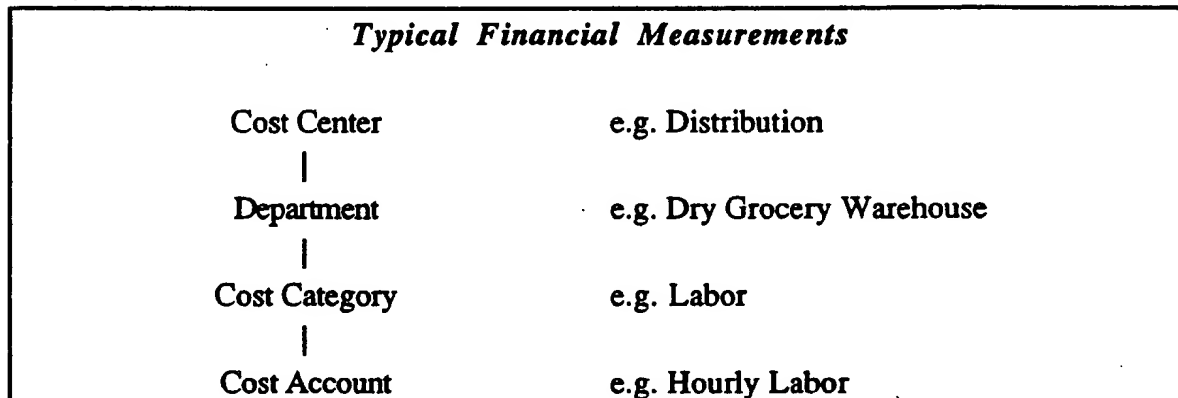
On the supply side, unreliable order lead times may be reduced by setting up delivery schedules based on forecasted requirements with the order finalized at the last possible moment. This is the concept behind the just-in-time delivery schedules used by

leading Japanese and U.S. companies that has cut the time between the receipt of materials and their use to a matter of a few hours.
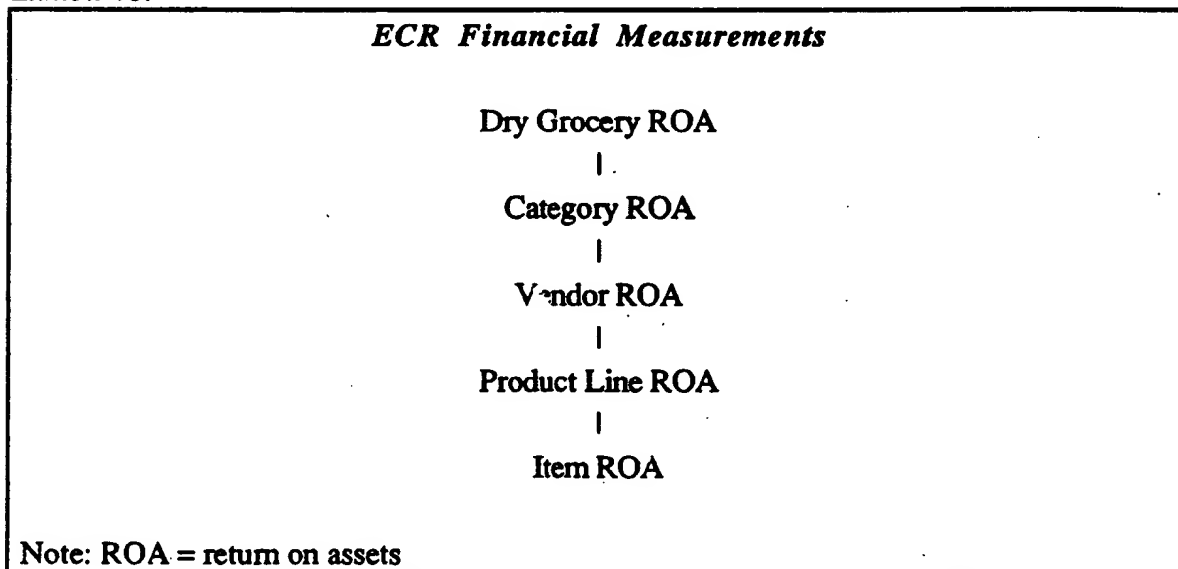
Financial Measurements

Most financial measurement systems are based on the classification of costs and revenues required for financial reporting purposes and therefore have some severe limitations for actually managing a business (Exhibit 47).

Exhibit 47:

Typical Financial Measurements	
Cost Center	e.g. Distribution
│	
Department	e.g. Dry Grocery Warehouse
│	
Cost Category	e.g. Labor
│	
Cost Account	e.g. Hourly Labor

To support the customer-based organization a financial reporting system that reports on assets at all levels from the Business Team to the individual item will be necessary.

Exhibit 48:

ECR Financial Measurements
Dry Grocery ROA
│
Category ROA
│
Vendor ROA
│
Product Line ROA
│
Item ROA
Note: ROA = return on assets

Not all expenses can or should be allocated all the way down to the item level. For example, it is not meaningful to allocate the category manager's salary below the category level. Other costs or revenues (particularly market development funds) may be associated

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with a vendor's total business and it is not meaningful to attempt to allocate these items below the Vendor ROA level. This format enables the category manager to make meaningful comparisons between the relative profitability of different vendors and then to work with individual vendors to improve the profitability of individual items or product lines.

This format also gives the categ．.y manager a strong tool to work with when he comes to evaluate new products. Top performing vendors would be given priority for allocating additional shelf space, while poorly performing vendors would be required to delete items if they wished to introduce a new product.

Direct Product Costing and Direct Product Profitability systems were introduced into the grocery industry in the 1970's. These tools come closer to the required ECR measurement systems than typical systems but have not found widespread support. Where they are used they are used for periodic analyses rather than for continuous performance measurements.

The fate of DPC/DPP illustrates what happens when the organization structure and the measurement systems are not congruent. In this case an attempt was made to change the measurement system without changing organizational accountability. Since no one in the organization has clear responsibility for direct product profitability it never had widespread support and no one could justify the effort involved.

DPC/DPP would be useful temporary bridge to the measurement system that is required to support customer-based organizations. Longer term the optimum solution will come from the development of Activity-Based Costing systems for the grocery industry.

ABC systems are based on a different premise than traditional cost systems. Traditional cost systems relate every cost to a product either directly or indirectly through allocation. This stems from the financial origins of the system with its requirements to value inventory. Activity Based Costing is based on the premise that costs are related to activities rather than products. Installing an ABC system requires that first all of the activities in an organization are determined and then costs are assigned to the activities. Activity costs may then in turn be allocated to organizational units, vendors, items, etc. based on a determination of what causes an activity to be performed. Some examples will make the value of this approach clear.

A category manager's salary would normally be allocated to the categories he managed based on the time spent on each. If he managed three categories and spent an equal amount of time on each then his salary (and fringe benefits) would be allocated equally among the three categories. This gives a much better value for category

profitability then traditional systems where his salary would usually be allocated based category volume, overstating the profitability of small categories and understating the profitability of larger categories.

In the warehouse, hourly labor would be charged to the different types of work performed, e.g. selection, let-down, put-away, etc. The cost pool of selection labor would be allocated based on the number of cases of an item selected as a proportion of the total number of cases selected. Using this system if an item was changed from a put-away/storage/ selection routing to a cross-dock flow through routing the cost saving would immediately show up as an improvement in the item's profitability, a change that would not be apparent under traditional systems.

Although ABC will be an important tool to obtain the maximum benefit from ECR, it is not a pre-requisite to begin. The organizational changes, the non-financial measurements systems and the established DPC/DPP methodologies all provide adequate tools to make an extremely effective beginning. Once ABC systems are available and installed they will reinforce what has already achieved and enable further improvements to be identified.

ACTION STEPS FOR DISTRIBUTORS & SUPPLIERS

CEO Leadership

There is only one prerequisite for an organization to be successful in implementing ECR - strong leadership and commitment from the CEO. ECR requires significant changes in organizational structure and responsibilities, measurement and reward systems, and relationships with customers and suppliers that cut across inter- and intra-organizational boundaries. Only the CEO has the authority and the power to make these changes, and they must be applied at the start. The organization will then respond to its perception of his commitment and dedication to a different way of doing business.

Paradoxically, those organizations that have been most successful in the past have the greatest difficulty in responding to major changes in the business environment. The organizational culture is a set of values, beliefs and practices based on what made the organization successful in the past. It is a natural response to cling to these behaviors when faced with major external threat. The traumatic downsizing at General Motors, IBM, and Sears in response to problems that were evident to outsiders many years ago well illustrates the consequences when large organizations fail to keep up with change.

The adoption of Quick Response in the general merchandise industry also provides a model to help understand the adoption of ECR in the grocery industry. Quick Response did not meet with universal acclaim when the original research was first published, or even when the highly successful results of the initial pilot projects were released. However, probably a tenth of the industry, many of whom were already developing similar strategies, seized upon the opportunity to be the first to build QR partnerships with like-minded customers or suppliers. These early adopters include retailers such as Wal-Mart, J.C. Penney, and Dillard's Department Stores and suppliers such as Levi Strauss & Co., VF Corporation and Hanes. The strong growth of these companies during the last recession provided ample proof, for any who still doubted, of the benefits of Quick Response.

The fortunes of those companies who were not among the early adopters have varied widely. Probably one-third subsequently became strong supporters, either because they saw their competitors successes or because deteriorating financial performance resulted in top management being replaced by a more progressive management team. Another third were forced into Quick Response by customer demands and are suffering because they have experienced many of the extra costs of QR without any of the benefits. The last third are companies that are already out of business or are in Chapter XI trying to restructure themselves into a viable business.

Throughout all of this, the single factor that has differentiated the winners from the losers has been their top management leadership. Those CEO's who saw opportunities where others saw only problems, those whose commitment did not waver, and those who could inspire and motivate their employees have brought their companies to outstanding levels of performance even in a recessionary economic environment.

Getting Started

Companies in the grocery supply chain are at many different starting points when discussing how to get started in ECR. A few are at or close to the levels of Best Practices described in the earlier chapters of this report, at least in some of their operations, although no-one has reached Best Practices in all areas. Others have made some progress, perhaps with continuous replenishment or joint customer/supplier teams, while the majority have some awareness of change but are not sure what it means or how to get started.

This section is written primarily for the last group, although it will also be helpful for those who are more advanced as they develop and implement their strategies. It also presupposes that top management believes that ECR is the right direction to follow and that they need to get started soon. Companies that wait until they have to do it will have lost substantial ground to their competitors.

Exhibit 49:

Two-Year Action Plan for ECR Implementation (Example)

	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Create Internal Climate for Change								
— Management Action Plan								
— Internal Communication & Education								
— Business Team Pilot Programs								
— Prototype Measurement System								
— Pilot Expansions								
— Design/Install Measurement Systems								
Build Supplier/Distributor Alliances								
— Top Management Meetings								
— Joint Task Force Projects								
— Add Additional Partners								
Develop I.T. Support Strategy								
— Develop I.T. Strategy								
— Install Foundation Technologies								
— Design/Install Level 2 Technologies								

The action plan recommendations are based on a combination of what has worked for those suppliers and distributors who have already started in ECR and the experiences of general merchandise retailers and suppliers in implementing Quick Response. The most successful approach is to begin with three concurrent action steps: Create the Internal Climate for Change; Build Supplier/Distributor Alliances; and Develop an I.T. Support Strategy. An example of how these steps should be time phased is provided in Exhibit 49 and the key activities are described in the following sections.

Create Internal Climate for Change

This step is the most difficult and the most demanding on top management's leadership skills. The suggested approach employs both company wide communication and education and the use of pilot programs in defined business areas to prototype and test new organizational structures and measurement systems. This approach allows top management to anticipate and avoid problems that would arise in an immediate major restructuring.

- Management Action Plan

    The initial step must be to build full commitment to the ECR strategy at top management levels, to assess potential benefits and obstacles, and to establish priorities for implementation.

- Internal Communication & Education

    The action plan must be communicated clearly and repeatedly to all in the organization. Management training in leadership skills and in managing organizational change will aid implementation significantly.

- Business Team Pilot Programs

    A part of the business should be chosen to pilot the organizational changes and measurement systems for ECR. The selection of this pilot area is usually not difficult as enthusiastic volunteers will typically come forward. The pilot area(s) chosen should be meaningful to the business but not so critical that problems could disrupt the whole company. A medium-sized division (for distributors) or brand/category (for suppliers) is ideal.

    The business teams should be established to have total accountability and responsibility for their performance of their business.

- Prototype Measurement Systems

    During the pilot programs the measurement systems required should be designed, tested, and refined.

- Pilot Expansions

    Based on the experiences gained during the pilot, the new organizational structure should be implemented in other parts of the company.

- Design/Install Measurement Systems

    The approved measurement systems should be documented and installed in conjunction with the pilot expansions. Some parts of the system (e.g. Activity Based Costing, if required) may take longer to design, program and install. Continuing education in the new measurement systems will be required during this period.

Build Supplier/Distributor Alliances

The building of strong effective working alliances with suppliers or distributors is a key part of the ECR strategy. It is recommended that two to four trading partners and their brokers be chosen for the initial pilot alliances. If possible it is highly desirable to chose partners who are aligned with the internal business team pilots that are being set-up.

- Top Management Meetings

    Top management must be involved from the very beginning and must stay actively involved throughout the pilot. A CEO who never comes to these joint meetings signals his lack of commitment very quickly.

- Joint Task Force Projects

    One or more joint task forces should be set up with each partner to identify and implement improvements in the flow of product or information. Initially there will be a lack of trust on both sides, and it is strongly recommended that the task forces not try to address sensitive issues at once. Based on the experience of several suppliers and distributors, the following projects are ideal.

    - Improving truck loading to reduce damages

- Reducing invoice deductions

- Continuous replenishment

- Add More Partners

The first pilot will develop an experience base so that further partner alliances can be created much more quickly. It is advisable not to rush to add more partners until the first alliances have shown meaningful results.

Develop I.T. Support Strategy

The effective implementation of ECR will depend heavily on effective Information Technology support. However, it must again be stressed that the system should be re-engineered before the I.T. Support is designed and implemented rather than attempting to support an inefficient system. There are a number of foundation technologies that can flexibly support almost any subsequent developments and there is no justification for delaying their implementation.

- Develop I.T. Strategy

While the detailed requirements of I.T. Support cannot be developed until later, the overall conceptual design and hardware requirements can and should be developed in this initial step. If major hardware changes will be required, these should be budgeted and authorized as expeditiously as possible

- Install Foundation Technologies

The foundation technologies cover all the systems elements shown in the Best Practices Replenishment Schematic. These include:

- Integrated EDI using UCS standards
- P.O.S. and store-level perpetual inventory systems
- P.O.S. History Database
- Computer Assisted Ordering
- Space management
- DEX/UCS
- UCC EAN shipping container labels
- Continuous replenishment

Most of these systems can be purchased as packages, which greatly eases their implementation

– Design/Install Level 2 Technologies

Following completion of the management action plan and the I.T. Strategy, and with experience gained from the internal and external pilots, design and development work on the Level 2 technologies should begin. The Level 2 technologies are those required to support the second phase of ECR implementation, i.e. the movement from Best Practices to Fully Implementation. The Level 2 technologies are more advanced and few will be available as packages. Many companies may choose to develop their own systems at this level because of a perceived opportunity to gain competitive advantage of superior forecasting or allocation algorithms.

Several systems are required to move from Best Practices Replenishment to Efficient Replenishment. These include store/SKU level forecasting, dynamic CAO, and dynamic allocation.

Other operating systems requirements at the Level 2 stage include scan-validated coupon redemption, P.O.S. markdowns and frequent customer databases. Analytical and modeling tools to analyze consumer purchases at the item level for seasonal, daily and price-related factors will also be required to support the store/SKU forecasting system.

I.T. support will also be required to develop and implement measurement systems for the customer-based organizational structure. For many companies this will be a major undertaking. It is an area where a common, industry-level initiative to develop new systems will be highly beneficial as discussed in the section on industry initiatives.

RECOMMENDED INDUSTRY INITIATIVES

Individual suppliers, distributors, and brokers have been the principal driving forces behind the early development of ECR. Although much has been accomplished, both internally and in working alliances with trading partners, the rate of penetration of ECR practices will be slow if it must depend solely on the initiative of individual companies.

Companies that have begun to implement ECR have reported several common impediments as shown in Exhibit 50. Each of these can be significantly overcome through industry level initiatives.

Exhibit 50

Impediments to the Rapid Implementation of ECR Practices

❑ Lack of awareness among prospective allies of the opportunities, benefits and principles of ECR

❑ Lack of CEO-level commitment to sponsoring changes in business practices

❑ Time and resources required to bring each new partner "up the learning curve"

❑ Excess time and cost in developing own versions of systems and practices that others have already implemented

❑ Excess time and cost to learn and interface with allies' proprietary systems

❑ Lack of technical expertise

❑ Accounting systems that don't measure the benefits of ECR practices

Four key joint-industry initiatives are proposed that will enable distributors, suppliers, and brokers to implement ECR business practices and technologies more rapidly and at lower cost (Exhibit 51).

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Recommended Industry Intiatives

ECR Conferences >

Publish Best Practices >

Sponsor Pilot Programs >

Develop System Standards >

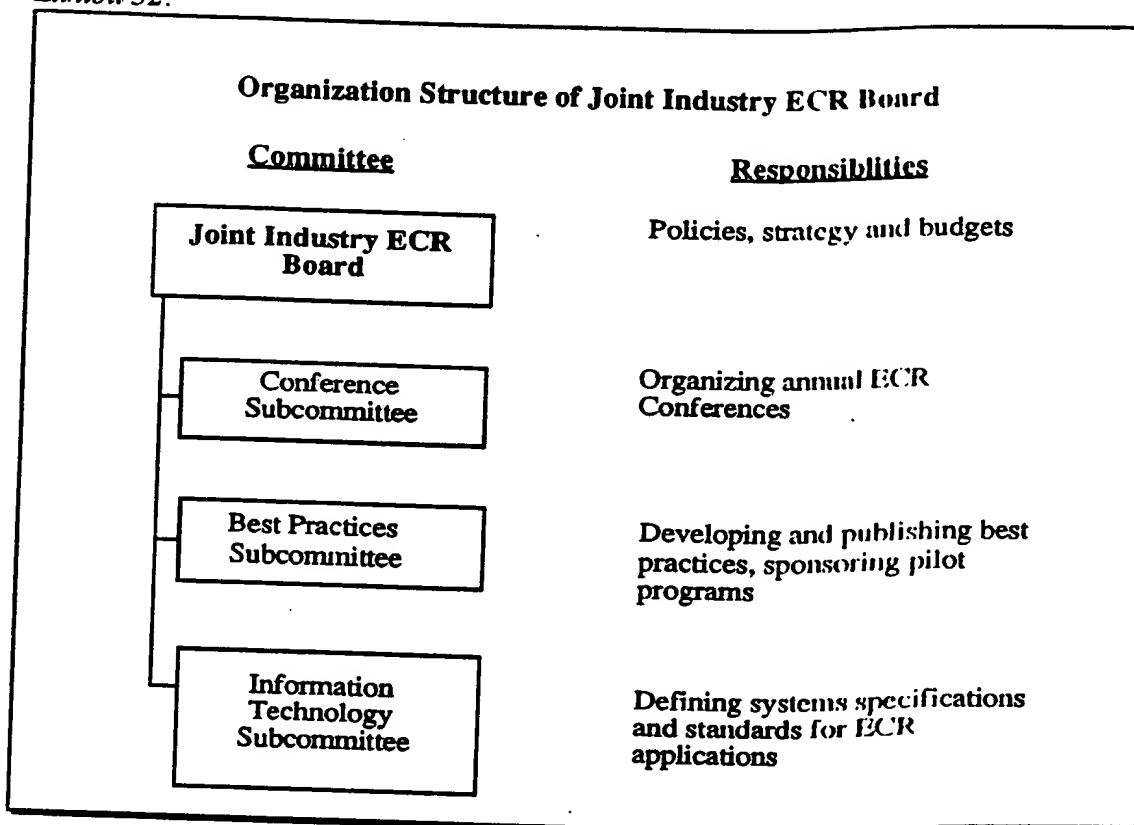**Accelerate learning and reduce cost of implementing ECR business practices and technologies**
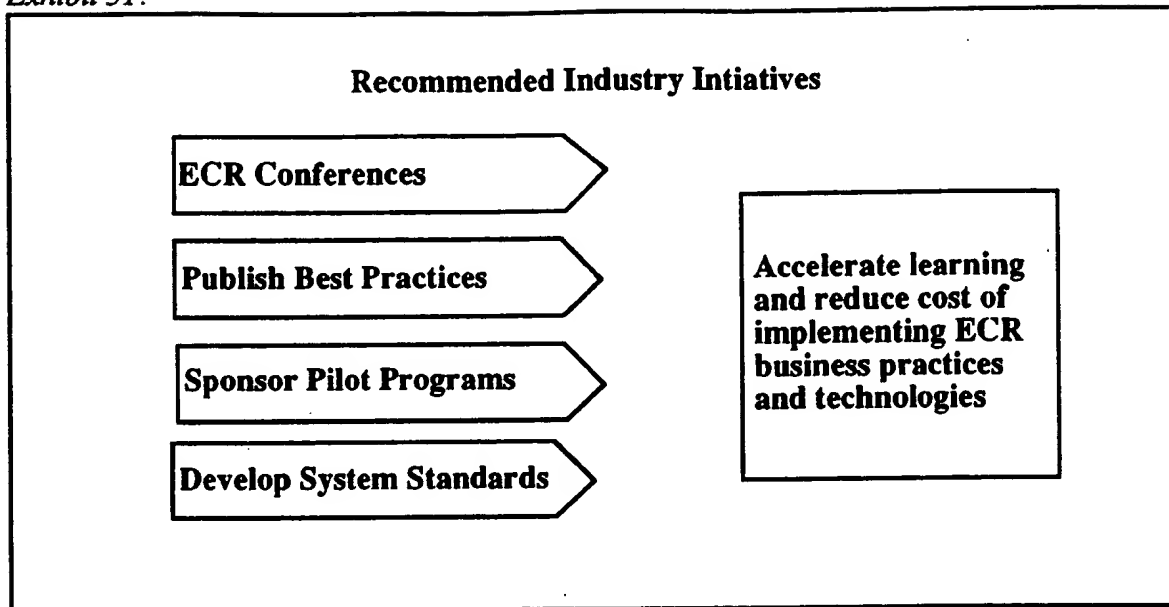
To coordinate and manage these activities a joint industry approach is essential. There is a widespread concern that if one group, either of suppliers or distributors, acts independently the implementation of ECR could be slowed, particularly if the non-participating group see this as an attempt to impose new business practices upon them. An even worse situation would arise if each group independently developed its own programs, an outcome which could lead to deadlock and total confusion.

A carefully planned public relations program within the grocery industry will help publicize the effort. As with QR in the general merchandise industry, early progress may be slow. As pilot program successes are publicized, however, the total program will gain momentum rapidly.

The Efficient Consumer Response Working Group which sponsored this report is a good example of joint-industry cooperation and collaboration. The Working Group is co-sponsored by the UCC, the FMI, the GMA, the NFBA and the AMI, and brings together senior executives from companies throughout the grocery industry supply chain. This group, with additional co-sponsorship from other trade associations, could form the nucleus for the creation of a CEO-level Joint Industry ECR Board tasked with leading these four key initiatives. CEO's or business leaders on the Joint Industry ECR Board would serve for a two-year term and would be expected to have their organizations participate in pilot projects and contribute resources to the subcommittees. The Joint Industry Board would operate through at least three key subcommittees, (i) A Conference Subcommittee responsible for the organization of an annual industry-wide ECR Conference, (ii) A Best

Practices Subcommittee responsible for documenting and publishing best practices for specific programs (e.g. continuous replenishment) and for initiating and sponsoring pilot projects to develop new best practices, and (iii) an Information Technology Subcommittee responsible for defining and maintaining systems specifications and standards for the use of all industry participants. The objective and benefit of each initiative are described in the following sections.

Exhibit 52:

Organization Structure of Joint Industry ECR Board

Committee	Responsiblities
Joint Industry ECR Board	Policies, strategy and budgets
Conference Subcommittee	Organizing annual ECR Conferences
Best Practices Subcommittee	Developing and publishing best practices, sponsoring pilot programs
Information Technology Subcommittee	Defining systems specifications and standards for ECR applications

Annual ECR Conferences

A key element in the rapid spread of Quick Response in the general merchandising industry has been the annual QR Conferences. These conferences, beginning with QR '89 in Dallas, are sponsored by VICS, the Voluntary Inter-Industry Communications Standards group, and bring together retailers, suppliers and vendors with a common interest in improving the efficiency and effectiveness of the general merchandise supply chain.

Attendance at the QR Conferences ranges between 1,000 and 1,500 people with many companies bringing teams of people who are involved in implementing QR in their own companies and with trading partners.

The grocery industry's ECR Conferences should be annual events, at least for the first five years, after which time the Joint Industry ECR Board should review the continuance of these events. The first conference, ECR '93, would best be held in the Fall of 1993 to provide sufficient time to organize the arrangements and to develop the program. The program should include

- ❏ Keynote speeches by CEO's of supplier and distributor companies on the critical role of ECR in maintaining a competitive grocery supply chain

- ❏ Success stories from companies about their progress in implementing ECR

- ❏ Release of annual special surveys on the penetration of ECR

- ❏ Release of reports and recommendations by the Best Practices Subcommittee

- ❏ Workshops catering to companies at all stages of implementation (Getting Started, Intermediate, Advanced)

- ❏ Networking opportunities at which attendees can meet their counterparts in other companies to share experiences and to make contacts for future follow-up.

Publish Best Practices

As more and more companies begin to implement the systems and practices of ECR they are experiencing frustration with a lack of standardization between the approaches of different trading allies.

One common example is Vendor Managed Continuous Replenishment, now being offered by over 20 suppliers. Distributors are finding that differences between the programs offered by different vendors are slowing their rate of implementation, while suppliers are finding that differences among their customers' programs are also slowing down their rate of implementation. Suppliers developing their own Continuous Replenishment programs, either at the request of a customer or on their own initiative, are also frustrated because there is no readily accessible resource to which they can turn for assistance. They therefore feel that they are required to reinvent something that already exists and that they may not be developing an optimum solution.

All of these groups would benefit greatly from the work of the Best Practices Subcommittee of the Joint Industry ECR Board. The Best Practices Subcommittee would be charged with documenting best practices in programs and systems related to ECR where there is already a significant experience base of practitioners. The subcommittee, through program-specific task forces, would develop a consensus from this experience base and publish its recommendations in the form of a handbook or manual. The subcommittee would also sponsor Best Practices Workshops at the annual ECR Conferences, thereby accelerating the adoption of these new practices and systems and ensuring greater compatibility between suppliers and distributors systems.

There are many programs where sharing and publicizing an existing experience base of best practices would be beneficial to the industry. The first projects undertaken by this subcommittee should include:

- Implementing UCS-standard purchase orders and invoices

- Implementing the UCS II transaction sets (Item Maintenance, Promotion Announcement, Price Change)

- Integrating EDI into your business systems

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- Implementing Category and Space Management

- Implementing Computer Assisted Ordering

- Implementing Vendor Managed Continuous
  Replenishment

Sponsoring Pilot Projects

The second key role of the Best Practices Subcommittee should be to sponsor pilot projects to develop an experience base for new practices, systems or technologies. Through this process, benefits and costs can be validated and new best practices can be developed and published, thereby accelerating the introduction of new ideas.

Because the purpose of these pilot projects is to develop and validate new best practices, it is appropriate to give this responsibility to the Best Practices Subcommittee. This will also provide a way for the subcommittee to resolve disagreements that might occur in the documentation of the best practices for existing systems or practices. For example, if consensus could not be developed on what is a best practice, the Subcommittee might sponsor a series of pilot projects to evaluate the alternatives.

Pilot projects were a key component in the early development of Quick Response in the general merchandise industry, yielding results that exceeded the initial theoretical projections. Similarly, pilot projects are well established in the grocery industry as an invaluable way to gather real data on the costs and benefits of new technologies or practices. Excellent examples are the UCS II pilot projects sponsored by the Uniform Code Council and the Scan-Validated Coupon Redemption pilot project sponsored by the FMI and the GMA.

Two types of pilot projects are recommended (Exhibit 53). The first is a number of holistic, system-wide pilots in which pairs of distributors and suppliers agree to test or simulate together all of the elements of ECR that apply to their business. The testimony of the CEO's of these companies at the ECR '93 conference on what they have achieved, even if only on a preliminary basis, will be the single most compelling reason for laggards to try to catch up.

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The second type of pilot projects are designed to develop Best Practices. Several technologies and practices already have been identified which industry participants believe will lead to significant efficiency gains if adopted as Best Practices. Each of these is still in a developmental stage, and a series of pilot projects to validate the approach will accelerate the acceptance and the implementation of these technologies and practices.

Exhibit 53

SUGGESTED INITIAL PILOT PROJECTS

A. Holistic ECR Verification Projects
Distributor/Supplier projects to test and evaluate on a pilot or prototype level all of the ECR strategies, practices and technologies.

B. Best Practice Development Pilot Projects
Specific projects to develop Best Practice recommendations on individual practices and technologies

1. Implementation of UCC/EAN 128 case labels for variable weight products (e.g. fresh meat).

2. Implementation of UCC/EAN 128 full pallet labels for receiving.

3. Implementation of UCC/EAN 128 mixed pallet labels and Advance Ship Notices for full pallet cross-docking.

4. Development of case-level cross-dock procedures using UCC/EAN 128 pallet labels and ASN's.

5. Implementation of vendor-reimbursed POS promotional allowances using next day, EFT remittance based on POS data transmission.

6. Joint vendor/retailer testing of a new product introductions using real-time shared POS data.

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Information Technology Subcommittee

The initiatives to document and publish best practices and to develop new best practice guidelines through sponsored pilot projects will greatly assist companies just getting started and those who have already begun implementation.

Those companies just getting started can greatly accelerate their progress by drawing upon the accumulated experience of trailblazing suppliers and distributors, thereby avoiding many of the pitfalls that these companies experienced. Companies who have already begun will benefit because they can develop their interfaces and procedures in accordance with published best practices, thereby greatly facilitating the formation of trading alliances with companies following the same guidelines.

While these steps are clearly beneficial, there are still two obstacles which can best be overcome by joint industry action

- Compliance with best practice guidelines is voluntary, and companies who face a significant investment to bring their systems into compliance may be reluctant to do so.

- Companies who are just getting started face a significant investment in either internal systems development or in purchasing and installing new software.

The Information Technology Subcommittee would be tasked with defining high-level functional specifications for ECR systems applications and, as necessary, overseeing their development. The subcommittee would also recommend the technical standards necessary to implement these applications.

While this is a major undertaking, there are enormous benefits to be gained by industry participants

- By sharing development costs the cost per user will be substantially reduced.

- By reducing the cost, suppliers, brokers, and distributors with proprietary systems will find it much

easier to justify the transition to industry-standard systems.

❑ As the installed base of standard systems grows, the cost and time required to add new ECR allies is significantly reduced.

Most of the industry-standard systems would be developed for the interface between distributor and supplier, i.e. ordering systems and distribution systems, as shown in Exhibit 54.

Exhibit 54:

Proposed Systems for Joint Industry Development

❑ Replenishment forecasting system at the store/SKU level that incorporates the effect of all planned promotional activity in the category

❑ System for Distributor Managed Continuous Replenishment

❑ Transportation planning system that integrates ordering requirements by vendor with alternative distribution options (direct ship, cross-dock, warehouse replenishment) and transportation options (vendor truck, single-stop CPU, multi-stop CPU).

❑ Cross-dock allocation system to allocate inbound orders direct to stores or to warehouse slots.

❑ Integrated broker/principal system and standards

In addition, there is a significant concern among suppliers and distributors that traditional inventory-based accounting systems, including the retail method of accounting, provide inadequate information to support management decision making. The major, and justified, complaint is that traditional accounting systems place excessive emphasis on gross margins as a performance measure while overhead and indirect costs are allocated on a somewhat arbitrary basis. The result is that buyers emphasize gross margin, the measure used to evaluate their performance, while the value of services that vendors provide, such as continuous replenishment, which improve distributors true profitability by reducing operating costs or increasing asset utilization, is not recognized by the accounting system.

DPP/DPC (Direct Product Profitability/Direct Product Costing) was developed by the grocery industry in the 1970's as a tool to assist suppliers and distributors in measuring product profitability. Although this is a significant improvement over the traditional accounting methodology, DPP/DPC is still only in limited use because it has never been fully integrated into distributors' business systems. A major reason for this is that it requires an extensive product database of physical characteristics which has been a major maintenance headache. Both DPP/DPC and space management (which requires similar data) will be facilitated by the adoption of the UCS Item Maintenance EDI transaction set. Although DPP/DPC does a better job than traditional accounting systems it still focuses on costs that can be directly related to a product (e.g. ordering, stocking, handling, etc.) and does not address the overhead allocation problem.

Because of these shortcomings several suppliers and distributors are evaluating Activity-Based Costing (ABC) accounting systems. As the name implies, ABC is based on the premise that all overhead and indirect costs are the result of activities that consume resources (time, materials, services, etc.). ABC first identifies what activities are being performed and then identifies the cost drivers that cause these activities to be performed. The costs of the activity are then assigned to a product, a vendor or a customer as appropriate, providing a much more meaningful measure of product, vendor or customer profitability.

To illustrate the application of ABC in grocery distribution we can use a relatively straightforward example, invoice matching in the accounts payable department. There are two major activities in the group - checking for a match and then resolving non-matching invoices - and the two primary cost drivers are the total numbers of invoices to be matched and the number of non-matching invoices that require resolution. An ABC analysis would take the cost of the invoice-matching function (salaries, benefits, space costs, supplies), calculate the cost of each activity based on work measurement, and then calculate a cost to match an invoice and a cost to resolve a non-matching invoice.

In calculating vendor profitability, a meaningful allocation of invoice-matching costs can now be made based on the total number of invoices and the number of non-matching invoices received from a given vendor. If this procedure is followed for all vendor-influenced activities (e.g. buying, receiving, handling, etc.) a measurement tool has been created to drive cost out of the system.

Traditional cost accounting systems would include invoice matching in the accounts payable department whose cost would typically be allocated on sales value. Under this system the buyer has no incentive to work with his vendors to drive these costs down because he is measured on a gross margin basis (i.e. before operating expenses), and he might see time spent on such activities as taking time away from negotiating deals that improved his gross margin.

Exhibit 55:

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Benefits of Activity Based Costing in the Grocery Industry

❑ Provides accurate information on the full direct and indirect costs of business activities and practices.

❑ Identifies the cost of activities that add no value to the final consumer.

❑ Supports category management by providing accurate profitability measures at the category, vendor and item level.

❑ Objectively determines the costs and benefits of joint supplier/distributor ECR improvement activities

</div>

Activity Based Costing is an important tool for all suppliers and distributors implementing ECR. By identifying activities and their cost drivers, suppliers and distributors can work together to either eliminate or improve activities, thereby driving cost permanently out of the system.

ABC accounting is still in a developmental stage. Most applications have been in manufacturing companies, but three or four major grocery distributors are reportedly evaluating the application of ABC in retailing. The Information Technology Subcommittee is the ideal body to develop guidelines on the implementation of ABC in the grocery supply and distribution industries as this will

- Provide a common "language" and consistency in the calculation of costs and performance measurements.
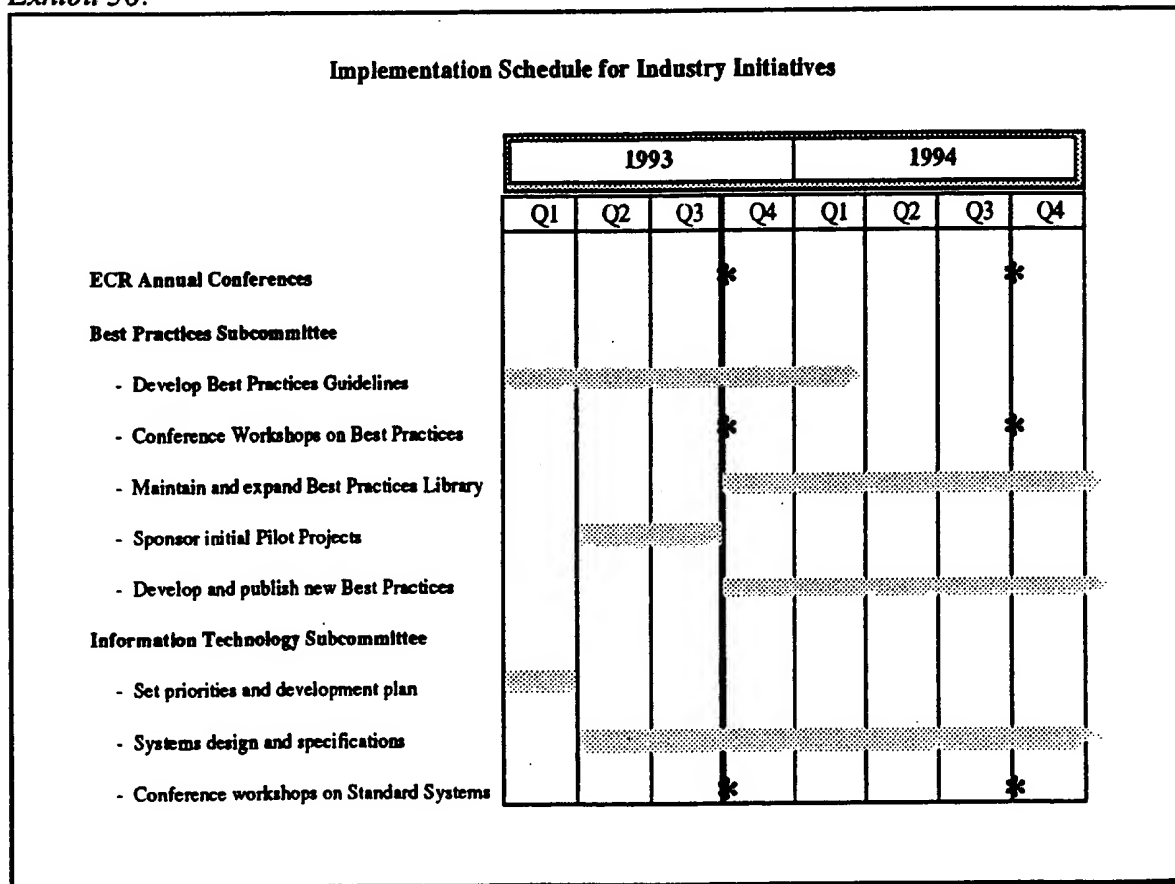
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- Reduce the design and development expense for the installation of ABC systems.

Implementation Schedule and Funding for Industry Initiatives

The proposed schedule reflects the desire of industry participants to move ahead as quickly as possible. However, it is predicated upon having the Joint Industry ECR Board and its subcommittees in place, funded and beginning work before the end of the first quarter of 1993.

Although Efficient Consumer Response will be on the agenda of most industry association meetings in 1993, the ECR '93 Conference will be the first major event dedicated to the acceleration of ECR. The optimum timing of this event is September or October, probably in Chicago or Dallas depending on the availability of suitable facilities. The timing allows six months for conference organization and for the completion of the first phase of the subcommittees' work plans.

Exhibit 56:

Implementation Schedule for Industry Initiatives

	1993				1994			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ECR Annual Conferences				*			*	
Best Practices Subcommittee								
- Develop Best Practices Guidelines								
- Conference Workshops on Best Practices				*			*	
- Maintain and expand Best Practices Library								
- Sponsor initial Pilot Projects								
- Develop and publish new Best Practices								
Information Technology Subcommittee								
- Set priorities and development plan								
- Systems design and specifications								
- Conference workshops on Standard Systems				*			*	

Adequate funding of the Joint Industry ECR Board is a critical prerequisite to its being able to accomplish its mission. There are many external funding options which the Joint Board may be able to rely upon. These include:

- Funding by sponsoring organizations including the UCC, FMI, GMA, NFBA and other industry associations.

- Membership fees and voluntary donations from sponsoring companies.

- Donations of personnel and facilities from sponsoring organizations and companies.

- Donations of products and services by vendors.

- Revenues from sales of software and published materials.

The Uniform Code Council (UCC) has already offered to provide administrative support to the Board and, in particular, to the two subcommittees involved in developing, piloting and maintaining standards, the Best Practices Subcommittee and the Information Technology Subcommittee. The trade associations also have staff experienced in organizing conferences. Their participation in the organization of the annual ECR Conference would reduce the overall funding requirement and may allow other industry conferences to be combined into the annual ECR Conference.

Because the benefits of ECR are dependent on the joint implementation by both sides of a trading relationship, the value of joint industry-wide commitment and participation is far higher than in most changes in business practice or technology. The effectiveness of a united industry effort is well illustrated by the rapid adoption of Quick Response in general merchandise retailing where companies not following QR practices are now at a significant competitive disadvantage.

Quick Response took five years to reach its current level of adoption in general merchandise. The grocery industry however enjoys one major advantage that was lacking in general merchandise - the existence of industry standards for EDI and product identification. Developing these standards took two years in general merchandise, and as they already exist in the grocery industry there is every reason to believe that the grocery industry can accomplish in four years what took five years in general merchandise.

The implementation of ECR will not be easy. It is however a challenge that the grocery industry must and can address if it is to avert the growing challenge from non-traditional food retailers. The proposed industry program will give all industry participants the knowledge and tools they need to succeed. With strong internal leadership every company can and must take advantage of this opportunity today if they are to avoid the consolidation and restructuring that will overcome the losers in the mid 90s.

Appendix

UCS II Expansion Program
PILOT PROJECT

Table of Contents

Summary

The complex nature of trade promotions in the grocery industry have made it very difficult for retailers, wholesalers, brokers, and manufacturers to create purchase orders that match their invoices (item numbers, list prices, promotion information, etc.). As a result, invoice deductions have increased as has the administrative overhead of the buying/selling cycle. This adds costs in the overall supply chain that provides no added consumer value. Overall, industry estimates show that only 30% of current purchase orders generate an invoice that is "clean" and is thus payable without dispute.

The increasing use of the UCS/EDI purchase order in some cases eliminated the face-to-face interaction between buyer and seller, removing the opportunity to get the orders "coded" and priced by the sales agent and the buyer. At best, this situation did not help the invoice deduction problem. Recognized as the key missing component in the electronic trading arena was a mechanism for efficiently communicating the information necessary to create a "clean" purchase order, which in turn would create a "clean" invoice.

In an effort to address this weakness, the Uniform Code Council (UCC) sponsored a joint industry working group to pilot the use of a set of EDI transactions to communicate item, price, and promotion information between trading partners. This project is known as the UCS II expansion project. Among its many successes, it is very notable on two counts.

First, the accomplishment of the primary goal; that is, a standard means of electronically communicating this data. UCS/EDI standards have been put into production and numerous improvements were made based on the increased usage during the pilot.

Second, the process of the UCS II project is notable in that it was a joint industry effort with the attention and energy of manufacturers, wholesalers, retailers, and brokers to reach a mutually agreeable solution to a problem they all share. In many cases it was this examination of business processes and alliances that resulted in the benefits achieved. The technology only enhanced the efficiency of the joint business processes.

At this point in time, the standards are in place, they are proven, and in many cases the internal integrated systems that are required for effective use of these EDI transactions have been—or are in the process of being—developed at the pilot companies. While documented benefits have not yet been achieved in all cases, all believe that the only obstacle now is to accelerate implementation of these UCS II transaction sets industry wide.

With a higher level of industry participation, a "critical mass" of UCS II capable companies will result in a dramatic level of cost reductions realized within these companies. These transactions are on the critical path for the achievement of the benefits of Efficient Consumer Response. Currently, the participant companies are enthusiastic about expected benefits, while at the same time being more realistic about the level of effort required to implement these changes.

Background and the Role of the UCC

The "Invoice Deduction Guidelines" report of the Joint Industry Committee stated that UCS can be an important tool in helping resolve the unauthorized deductions problem in the grocery industry. However, to achieve the results specified in the report, UCS must be viewed as part of a broader commitment to improving business practices. The report specifically recommended that the industry address these practices and commit itself to expanding the use of UCS.

Expanding UCS usage essentially means getting beyond the transmission of purchase orders and invoices, which has constituted the main use of UCS to date. Specifically, broad usage of the Promotion Announcement, Price Change, and Item Maintenance transaction sets would improve the timeliness and quality of data and result in prevention of errors that now cause invoice deductions. Such action, in turn, would also promote greater use of invoicing via UCS.

When the expansion program began, there were relatively few UCS users who had implemented the Promotion Announcement, and even fewer who had implemented the Price Change and/or Item Maintenance transactions. UCS was launched in the early 1980's through a pilot program involving thirteen companies who developed and tested the UCS standards to prove their feasibility and utility. The pilot test approach was also used successfully in 1987-88 to validate the proposed DEX/UCS standards for use in the direct store delivery area. The UCC used a similar approach, based on the invoice deductions study results, to promote a greatly increased use of UCS.

UCS II Expansion Program Objectives

The primary objective of the pilot program was to provide a broad level of documented evidence based on the usage of certain UCS transaction sets in an operational environment, that validates the additional benefits that UCS expansion can provide. Those results will then be used to promote the widespread adoption of the UCS expansion throughout the industry.

Secondary objectives of the program include:

A.   Identification and implementation of any needed changes/enhancements to the transaction sets based on large volume testing.

B.   Documentation of systems and business practices required to implement the integration of information contained in the UCS transactions.

Project Organization

The UCS II project was sponsored, organized, and administered by the Uniform Code Council. In this leadership role, the UCC served as the facilitator and manager for this UCS II Expansion Program. The UCC worked directly with its two major user committees, the EDI Advisory Committee regarding policy matters and the UCS Standards Maintenance Committee regarding technical issues. It was through UCC's direct invitation to its members and through the support of trade associations that the program's participants were recruited.

Although the expansion program started with six transaction sets, as the pilot progressed the Promotion Change and Promotion Confirmation transaction sets were collapsed into a single multi-purpose promotion announcement transaction. The Request for Item Information transaction also found lessened utility as the pilots progressed. The focus of the expansion program became the three remaining transactions listed below.

UCS II Transaction Sets

Set# Name	Primary Purpose	Sender		Receiver
888 Item Maintenance	Communicate the item level data from supplier to distributor, such as name, description, UPC Number, Weight, dimensions, and pack information.	Manufacturer Broker Manufacturer	→ → →	Broker Retailer/Wholesaler Retailer/Wholesaler
879 Price Change	Communicate the changes in item price.	Manufacturer Broker Manufacturer	→ → →	Broker Retailer/Wholesaler Retailer/Wholesaler
889 Promotion Announcement	Communicate the details of trade promotions, confirm promotion information and change promotion information.	Manufacturer Broker Manufacturer Broker Retailer/Wholesaler Retailer/Wholesaler	→ → → → → →	Broker Retailer/Wholesaler Retailer/Wholesaler Manufacturer Broker Manufacturer

Pilot Project Steps/Methodology

While the expansion program is ongoing, its restricted pilot status has been eliminated as of January 1993. The result of these efforts have led to a production environment with the pilot working group being expanded to any UCC/EDI member that wants to participate.

The pilot stages of the expansion program went through the following general steps, as quoted from UCS II project documents.

A.   Program Planning/Introduction

1.   Contact trade associations to obtain their endorsement and support.

2.   Finalize program management/sponsorship group, (i.e., Uniform Code Council, three Standards Maintenance Committee members, three Adviser Committee members representing manufacturers, retailers, and brokers).

3.   Document the effort required by individual users to implement the transaction set(s) prototype test.

4.   Finalize a detailed program task list and estimated time schedule.

5.   Develop procedures, success measurements, and progress reporting requirements.

B.   Obtain Program Participants

1.   Present the program and solicit prospects at the February Invoice Deductions Seminar. UCC to follow up with interested companies.

2.   Send general mailing to members soliciting participation.

3.   Finalize and publish list of test trading partners.

C.   Perform Program Testing

1.   Schedule and conduct introductory training session for test participants.

2.   Schedule and conduct meetings/workshops for test participants on regular basis to report progress/problems/solutions, etc.

3.   Provide consulting by management group for test participants by telephone, particularly during test start-up.

4.   Complete testing and compile documentation of results.

D.   Distribute Program Results/Promotional Follow-up

    1.   Work with trade associations to publicize test results at their conventions and conferences.

    2.   Use UCC User Group meeting(s) to publicize/discuss test results.

Requirements for Pilot Project Participants

Participants in the pilot were chosen based on current UCS abilities. These were a necessary starting point to be able to focus on the expansion transactions sets. The requirements for participants were:

- Must be an EDI member of the UCC.

- Must have the capability to send and receive EDI transactions.

- Must have their organization's commitment of time and funding to enable fulfillment of assigned responsibilities.

- Will develop and install a prototype system to send and/or receive and process one or more of the following transactions sets:

    —   889:   Promotion Announcement

    —   879:   Price Change

    —   888:   Item Maintenance

    —   893:   Item Information Request

- For the longer term, will commit resources to develop and install an automated, integrated system to handle previously identified transactions. Failure to integrate this information into internal systems will keep the industry from realizing the full potential of UCS.

- Will commit to the implementation of quality partnerships.

Pilot Project Participants

The UCC recruited forty-three companies into the expansion program. These included eight wholesaler/retailers, twenty-four manufacturing companies, and eleven brokers. These participants are listed in the table on the following page.

Also included in this participant group were several software vendors who participated to the extent that they took an active role in upgrading their translation and software packages to utilize the UCS II transactions. These participants are listed below:

Software Suppliers
Beckton/Schantz
Information Access
Sterling Software
Success Systems

Also involved were thirty-three observer companies. These were companies that were interested in the work being done but, due to internal constraints, were not able to participate fully.

UCS II Pilot Project Participants

Retailers/ Wholesalers	Manufacturers	Manufacturers (continued)	Brokers
Defense Personnel Support Center	Borden	Nabisco Biscuit	Carey-Ahrens-Raynesford
Gateway Foods	Campbell Soup	Nabisco Food	Chaimson
Giant Food (Landover, MD)	Colgate-Palmolive	Ocean Spray	Crown
Kroger Company	Del Monte Foods	Pillsbury	Dulin
Safeway Stores	Dial	Procter & Gamble	G.R. Bennet
Shaw's Supermarkets	Dowbrands	Quaker Oats	Leaman
SUPERVALU, Inc.	First Brands	R.J.Reynolds	Marketing Specialists
Vons Companies	Frito-Lay	Ralson Purina	RMI & Associates
	General Foods	Reynolds Metals	Sales Force Companies
	Gillette	Thomas J. Lipton	Sales Marketing Association
	Hershey Chocolate		Trump Company
	Kellog		
	Kraft		
	Lever Brothers		

UCS II Chronology

The kick-off meeting for the expansion program was held in May of 1991. Six working meetings were conducted as a part of the pilot program through November 1992. In the course of conducting the pilots, several task forces were formed to address specific issues related to the implementation of the transactions. The general agenda for the work meetings included:

- Task Group Reports

- Reports of Modifications to Transaction Standards (based on prior work)

- Identification of Issues Needing Resolution with Discussion

  - How to Handle Issues with Existing Standards

  - Modifications Required to Handle Issues

- Participant Company Status Reporting.

As the pilot progressed, the transaction sets became more robust, usable, and functional. The number of issues and their importance declined as the pilot progressed. They will certainly continue to evolve with use, but thanks to the participants in the expansion program, the bulk of the effort required to make these transactions usable has been completed.

Benefits of UCS II

The results of the pilot are a classic case of Good News/Bad News. First, the bad news. Very few companies achieved measurable, quantifiable results during the eighteen month pilot period. The primary reasons for this are neither bad nor surprising. Many of the participants did not start by developing small isolated pilot systems. Rather, they embarked on full scale development of integrated systems. This integration effort required more time and resources than initially expected and caused a re-examination of the underlying business processes. For this reason, many companies have not yet reached the point of achieving measurable benefits.

Second is the critical mass issue. While many participants did achieve benefits with their pilot partners, this represented such a small portion of the total business that the benefits were minor in relation to the whole business. This is an expected outcome of a pilot type program.

Taken together, the message from this "bad news" is good news. The pilot companies have invested in the expansion program to build integrated systems. Whether benefits were achieved or not, all believe that they are there and the participants are committed to carrying the pilot forward into production. As more companies continue this UCS expansion, the benefits will be magnified as a critical mass of participants is reached.

There is more good news. Many participants did achieve benefits in the administration of item and promotion information. Many obtained benefit, not from the UCS/EDI transactions specifically, but from the process of UCS II. The examination of business practices and processes across companies in and of itself helped to achieve many benefits. This effort expended in developing trading partnerships as a part of the UCS II program greatly enhanced the benefits that technology alone could not achieve.

When the pilot was eighteen months old (November 1992) the UCC polled the participant companies as to the level of benefit received from the expansion program. Presented in the remainder of this appendix are excerpts from these benefit statements. These are grouped by Retailers/Wholesalers, Brokers, and Manufacturers. This does not include many who simply stated that no measurable benefits had yet been achieved. However, some of these have been included when explanations and/or clarifications included important messages.

Participant Benefits Statements

The following are excerpts from the benefits statements provided by the UCS II expansion program participants. In their words, these are the benefits of the UCS II expansion transaction sets and the pilot process. The phrase *"STATEMENT #"* separates the benefits statements of individual companies.

Retailer/Wholesalers

Retailer/Wholesalers STATEMENT #1

One important item must be considered when reviewing these benefits. With many of the partners involved, we discussed the business issues that revolved around disputed deductions for pricing and promotion. Because of the in-depth analysis of the problem, procedural changes did occur that could have resolved some deductions without EDI. However, we firmly believe that this benefit is directly attributed to our decisions to establish EDI partnerships. Without that decision, meaningful discussion about problem resolution would have met limited success.

> Decreased Labor - Promotions are loaded directly to our on-line database. This eliminates data entry for both partners. First, we would no longer require vendors representatives to fill out our promotion announcement forms. Second, the

cont'd.

division eliminates almost all data entry for promotions. The on-line system allows our merchandisers to review the performance conditions and select the preferred options by entering an approval key. All detail information is already stored.

Improved Accuracy - Two points of transfer have been eliminated thus reducing the possibility of error.

Decreased Reconciliation and Deductions - By transmitting the information loaded onto our promotion and pricing databases to the vendor on our PO's, we have seen a reduction in costing differences and the resulting deductions. However, because we are not receiving all promotions (some vendors are not capable yet of transmitting performance related promotions) and the brokers are usually not receiving transmissions from all their principals, we still have some differences. We have documented decreases in deductions of over 50% for several partners. We are looking to reach an 80% reduction in invoice related deductions as a result of these transactions.

Buyer/Seller Benefits - With less time needed to resolve deductions, the buyer and seller can dedicate more time to merchandising and marketing strategies. In addition, by eliminating deductions we are reducing adversarial relationships that can be counter productive.

Retailer/Wholesalers STATEMENT #2

In order to quantify any cost justifications for those transaction sets involved in UCS II, we needed to look at the total UCS and UCS/DSD scenario. Each transaction set by itself, has not, at this time, been cost justified. Once the complete process has been outlined, then cost justification can be realized.

Cost savings begin to accrue when the various elements of new technologies are integrated. Immediate cost savings can begin by spending time to write an invoice matching program now that frees up the time currently spent in 30% of the invoices that are already "correct" and payable. Increasing the number of vendors on DEX and modifying the store level input by eliminating cost would dramatically reduce administrative costs and focus our attention and that of the DSD vendor on file maintenance. A formal testing program of transaction sets that some companies already send would enable us to debug with the suppliers his current input prior to the formal integration and on-going lobbying with suppliers to simplify deal structures now would make the future integration more effective. This partnering effort to simplify deals should also be married with efforts to expand Everyday Low Cost, CPU efforts and the inventory reduction efforts of JIT. The combined efforts in warehouse UCS, UCS for DSD, Everyday Low Cost and JIT yield substantial cost savings that make us more competitive in our market area. In reality they are all parts of the same cost reduction partnering effort.

cont'd.

Administrative Cost Savings Estimates

(from full integration of four transaction sets into warehouse and DSD systems)

Area of Benefit	Estimated Staff Reduction
Accounts Payable Staffing	30
Procurement	1
Price Change, Promotion/Item Maintenance, DSD System	2
Filing Activity	1
A/P Audit	2
Total	36
Potential Savings (@ $18,000 +1/3 Fringe per person-year)	$860,000

The partnershipping efforts on EDLC, CPU/JIT with warehouse vendors could potentially take another week of inventory out of the system equivalent to approximately $10 million or $1 million savings in the cost of money.

The soft benefits, or those that are difficult to cost justify for this project, have been the system enhancements. At first, we focused on each transaction set and how to receive the information. We then took a look at how we do business today and how we need to do business in the future utilizing UCS transactions sets. We have just completed the final enhancement to our Promotion System, which has integrated the promotion transaction set and we are now developing the integration of the price change transaction set into our Corporate File Management System. Item Maintenance development will begin the first of the year and this transactions set will also be integrated into our internal systems. Were it not for UCS II, this need would not have been identified.

Our next step is to isolate those partners who have been testing with us and move on to an aggressive production schedule. We have included several brokers in our test program, so that we will have a larger base of supplier data to utilize.

Retailer/Wholesalers STATEMENT #3

- Elimination of manually entering data and calculating order dates based on buyers lead time.

- Receive promotion notification earlier.

- Improved accuracy on item file maintenance which in turn improves invoice/purchase order comparison to an exceptional degree.

Much work has yet to be done and many partnerships have to come together before the UCS II pilot can identify and then quantify benefits. We have identified areas of opportunity that we strongly feel will provide both tangible and intangible benefits.

Price Change

Accuracy of Information

The network of relaying price information from Vendor/Manufacturer/Broker is a very time consuming manual procedure. Coupled with this are many inconsistencies in the way information is disseminated. By using the 879 transaction set to communicate the information, the delivery is much more timely, consistent, and accurate. The accuracy is improved because the information is derived directly from the vendor databases, and is not subject to the misinterpretation that can occur during manual communications.

Reduced Buyer Time

Today buyers must dedicate administrative time to collect, interpret, and key into our systems price information from vendors. This also includes time spent in identifying our item codes manually from the list that the vendor sends. In our implementation, the buyer will be presented with the cost information from each vendor in a standardized format and will be able to post this information into our systems with little effort.

Reduced Invoice Deductions

One of the primary reasons for the pilot is to reduce the amount of invoice deductions, and the excess time spent in trying to resolve invoice problems. In sharing data from system to system, errors should be drastically reduced. This of course can only be accomplished if each partner has integrated their price information into their invoice and payment systems.

Promotion Announcement

Accuracy and Clarification of Deal Information

Placing an often nebulous entity such as a deal into a structured format causes scrutiny of each component. We found that some deal letters contain verbiage that is no longer applicable, and the issues raised in our testing have resulted in the altering of the deal letters themselves. In general, this process has caused both partners to scrutinize the deals and improve the clarity of the document before transmission.

Improve Joint Understanding

As we have striven to ensure the deal letter and the transmission carry the same meaning, we have worked closely with the partners to fully understand both the

cont'd.

written (and unwritten) intent. This process has again clarified and improved our common understanding as to what is expected.

Open Exchange of Ideas and Concerns

This program has provided us an open forum to not only move further into EDI, but also to exchange ideas and reach common understandings that can benefit both parties. What one party may take for granted as a requirement, may after an open discussion be seen as a non-issue or the trading partner may have never realized that a particular concern existed and has found that a simple solution was readily in hand.

Standardization of Business Practices

As we open discussions with each new trading partner, we review business issues. (e.g. timing of deal presentations, types of deals, overlapping deals, etc.) We find that the procedures and agreements reached for testing purposes have applicability for deals beyond the test group of items. Thus again, this enhances the overall business relationship and simplifies the process.

Aside from the above items, we continue to have high expectations regarding the perceived long term benefits. Among these are:

Reduced Buyer Time

Currently, all deals are entered manually into our system by the buyer. This is a labor intensive process given the number of deals we process. Our goal is to receive the Promotion Announcement and load them directly into our corporate database. In this way, the buyer involvement is dramatically reduced and the accuracy of the data will be improved.

Improved Audit Trails

With the transmission of the deals, we will now consistently receive a vendor deal number. This, in conjunction with our own internal system and procedural audit trails, will enable us to track a deal and all of its related parts by the vendor's deal number as well as our deal number. Thus any subsequent correspondence or transmissions can be readily tracked back to the original deal resulting in a reduced risk of "duplicate deals".

Reduced Invoice Deductions

We share this goal with everyone else involved with the pilot. The reduction of errors due to misinterpretation and the incorrect application of deals will have a dramatic impact on invoice processing.

Price Change

Realized Benefit

- No benefits measured yet - until Price Changes integrated into Purchasing and DSD Systems.

Expected Benefits

- 50-80% reduction in the time it takes to handle and process item price changes.

- 20-30% reduction in the number of item invoice discrepancies between retailer and supplier.

- Decrease problem resolution time associated with item costing at store level.

Needed to Maximize Benefits

- Minimum 10 day lead time on UCS Price Change notification from Supplier.

- Accurate communications between retailer and supplier on bracket costing information.

Promotion Announcement

Realized Benefit

- 80% reduction in the time it takes to handle and process promotion announcements.

Expected Benefits

- 30-40% reduction in the number of item invoices discrepancies between retailer and supplier.

- Maximize item promotional opportunities with quicker access and review process.

- Decrease problem resolution time associated with item costing at store level.

Needed to Maximize Benefits

- Minimum 7 week lead time on UCS Promotion Announcement notification from suppliers.

- Ability to use the UCS promotion announcement change Transaction.

- Ability to receive supplier allowance numbers and return with UCS purchase orders.

Item Maintenance

Realized Benefits

- No benefits measured yet.

Expected Benefits

- 50-80% reduction in the time it takes to handle and process new item maintenance.
- 0-10% reduction in the number of item invoice discrepancies between retailer and supplier.
- Elimination of one to two weeks in the time it takes from new item approval until new product is on the store shelf.
- 0-5% improvement of the in-store scanning rates.

<u>Needed to Maximize Benefits</u>

- Immediate delivery of the UCS Item Maintenance transaction the day it is available to the market.
- Timely and accurate notification via UCS of item maintenance transactions.
- Strict adherence to the UPC guidelines.

Brokers

Tangible benefits will not be recognized by the food broker organizations until both manufacturers and more importantly retailers and wholesalers develop the capabilities to integrate the information into their systems. The largest benefit for food brokers will be the ability to replace customer specific "deal control" and "new item" forms with electronic UCS transmissions.

Brokers STATEMENT #1

Phase I   Automation of Trade Contracts

- Sales productivity: 20% more time available for other selling activities.
- 5% reduction in pricing deductions.
- 15% reduction in the administrative time spent on pricing deductions.

Phase II   Full Scale Promotion Contract implementation

- 20% reduction in deductions.
- 70% reduction in administration of invoice deductions.
- 50% reduced promotion creation time.
- 15% reduction in administration time in promotion creation.
- Reduction in major account forms cost.

Before we reap the full potential of these transaction sets the industry needs to adopt their full usage potential. I am looking forward to the time when they are commonplace, knowing that efficiency and accuracy will be the true reward.

Manufacturers

Manufacturers STATEMENT #1

Less off-invoice deductions have been realized with pilot partner by using the 889-Promotion Announcement.

Manufacturers STATEMENT #2

Measurable numbers are not available at present. With a direct sales force we foresee one of the major benefits as relief from many hours of administrative work. Our expectations are additional sales volume due to availability of the sales force to work with the buyers/merchandisers on special marketing programs and promotions. Upon completion of the roll out of both phases we expect a major reduction in deductions by alleviating human intervention in the processes.

Manufacturers STATEMENT #3

- Overall improvement in accuracy and timeliness of business information while also reducing operating costs.

- Improve efficiency, lower costs, reduce unnecessary manual processing.

- Eliminate discrepancies between customer files and our files (for price and item information).

- Prevent invoice deductions by transmitting promotional information to customers. This will assure that the manufacturer and retailer have the same promotional data, which should result in a correct price on the purchase order.

Receipt of a "cleaner" purchase order. The three areas that experience the most manual intervention on an order are SKU, List Price, and Promotional Moneys. Accuracy in these areas would result in a faster order cycle, a clean invoice, and a reduction in costs for both the manufacturer and retailer.

Manufacturers STATEMENT #4

As of this point, our project team has worked with our partners to identify the information needed and to establish the timing requirements for delivering the data. Our findings showed that we could not meet either requirement with our current systems. The internal system must be changed to satisfactorily meet the expectations of some of our partners. Others seem to be satisfied with the data we send. To accomplish the necessary changes, priority setting is needed. Although we are committed to be a part of the UCS II project, these changes must be considered in line with other company issues.

It is safe to say, to date, the pilot program has not benefited us as we expect it will in the future, but the UCS II project forced us to examine the requirements long before we would have otherwise.

The benefit we expect to obtain from the exchange of price and promotion information is the reduction of and better handling of invoice deductions. This will occur, however, if our partners use this information on their purchase order transactions. Customers who provide price and promotion information on their purchase orders give us the benefit of reviewing their pricing expectation at order entry; and this reduces deductions. One of our partners, however, states the price and promotion information will be used internally and not be put on the purchase order. Without this information on the purchase order, we see the UCS II project as one that will require many changes to our existing systems and provide little value to us.

Manufacturers STATEMENT #5

We made significant investment in new Order Management and Promotion Management Systems. UCS II transaction sets are a small part of this systems development effort.

Expected Benefits

- Continuous improvement of customer service by:

cont'd.

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-Providing a full range of EDI capabilities to our customers.

-Improving accuracy and timeliness of data transmitted to and received by customers.

- Reduced invoice Deductions

- Promotion announcements for off-invoice allowances are expected to yield marginal improvements in reducing invoice deductions.

- Promotion announcements for other types of allowances are expected to yield more significant reductions. However, implementing the other types will require greater analysis and effort to implement, including possible changes to business practices. The analysis to determine the cost and benefits of using EDI for these types of promotions has net yet been performed.

Manufacturers STATEMENT #6

From the broker standpoint, there should be reduced administrative expense, improved account relationships through better customer service and more efficient management of the our business. For our part, we should realize reduced deduction and administrative burden. While the dollar value of this improvement is not easy to quantify, we believe that we could realize up to $1.5 million savings annually once all distributors and our brokers are operating with total UCS/EDI transaction sets.

Manufacturers STATEMENT #7

As far as benefits are concerned, we have already realized a significant productivity increase internally because of our involvement with UCS II. This project forced us to finally take action on a promotion communication process that was somewhat confusing to our people and brokers because of the flexible approach (allowing too many changes), as we incorporated UCS promotion announcements. The result - almost 1,000 hours(annually) of wasted time were eliminated on internal administration alone. It is too early to gauge the impact on productivity in the field with our managers and brokers and on invoice deductions, but we expect to be able to document significant improvements in both areas as well.

Furthermore, our involvement in the UCS II expansion program has allowed us to develop strong relationships with several important customers. We believe that these relationships can develop into strong EDI alliances with these and other customers in the years ahead.

Conclusions

From these benefits statements, it is clear that the UCS II expansion program has been a success. Realized yet or not, all participants believe that significant savings can be achieved using the UCS II transactions. These areas of benefit include:

- Item Maintenance Administration

- Promotion Administration

- Increased Selling/Buying time

- Reduced Invoice Deductions

- Streamlining of Business Processes

- Increased Timelines and Accuracy of Data

- Stronger Partnerships.

Another conclusion from these statements of benefit is that the technology alone will not be sufficient to reach the expected cost savings. Implementation of these transactions must be accompanied by:

- An Examination of Internal Business Practices and Processes

- Review of Current Systems and Ability to Integrate UCS II Data

- Review of Joint Business Issues with Potential Partners

- Streamlining of Business Processes across the Partnership.

Once the implementation of the EDI technology has started, setting up to send/receive the transactions is the easy part. The integration into internal systems is the area that can consume a tremendous amount of time and energy. Older systems make this task more difficult. However, this integration must be completed because the UCS II transactions alone will provide only limited benefit.

Notes

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